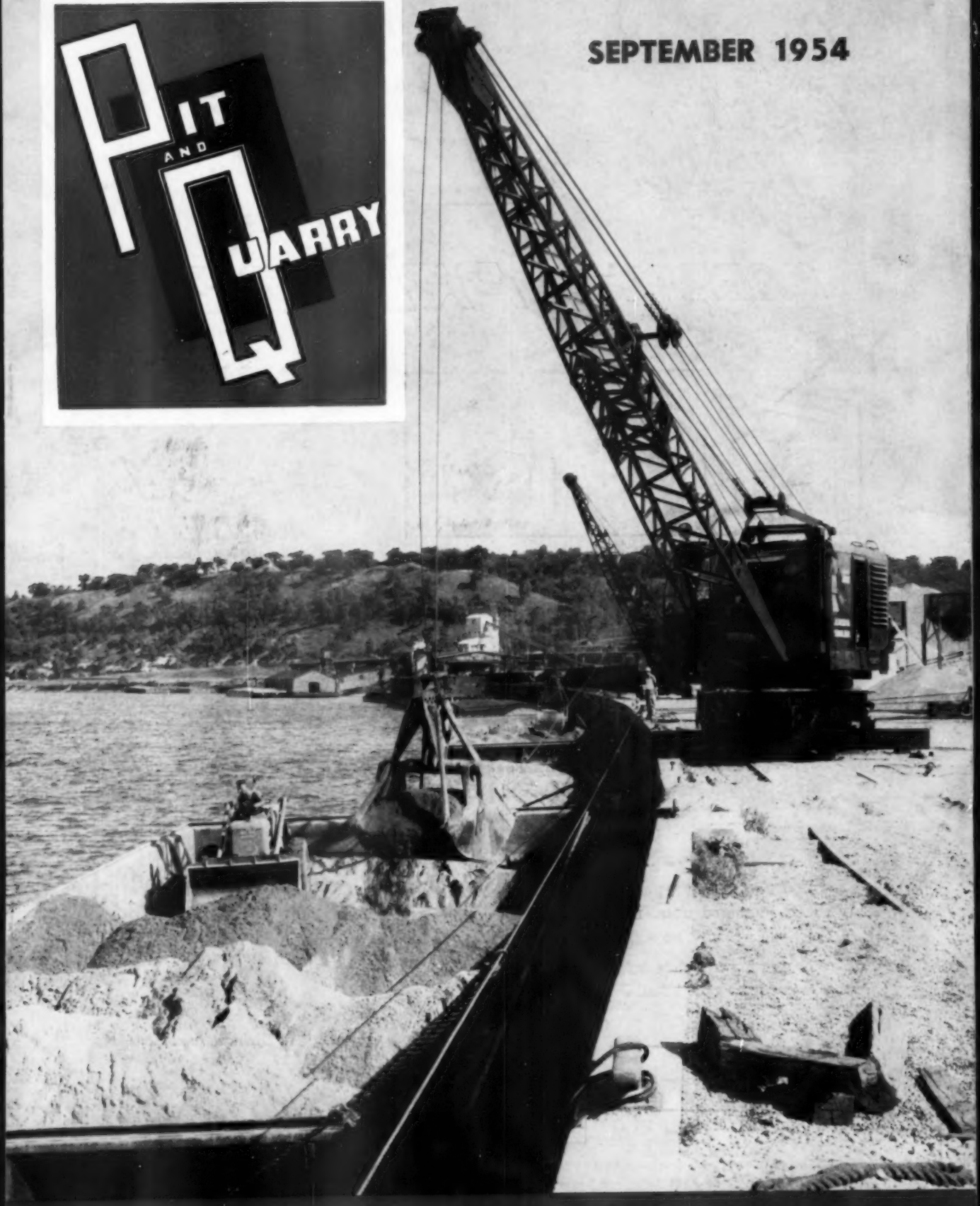
PIT AND QUARRY

SEPTEMBER 1954



Unloading Aggregates at the New Shiely Barge Terminal in St. Paul, Minn. (See Page 68)

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Our pioneering pays off in profits for you

BAGPAK PREFORM MULTIWALLS

It's the Crease that does it!

- **Makes bagtop forming easier**
- **Speeds Bag closing**
- **Insures better filling**
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Bagpak, the first to introduce multiwall bags to many industries, then improved them with the PREFORM top for easier, time-saving uniform closing. Now the PREFORM feature at the bottom means easier opening for faster, more complete filling.

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THE KIRWIN DAM, now heading for completion 13 months ahead of schedule, is not our nation's largest—but the Solomon River, which it harnesses at last, could well be America's most fiendishly treacherous dam site! But neither dust nor deluge, seepage nor high winds nor low visibility—nor 15,000-yard landslides (as shown above)—can keep these steeped-in-experience, veteran contractors from hitting their breakneck dirt-moving pace of more than a million yards a month!

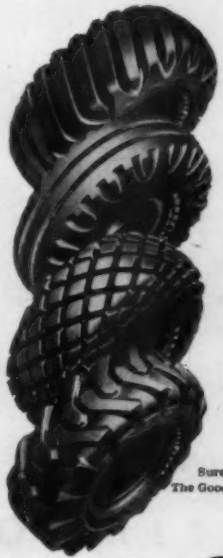
Trained experts periodically examine giant tires that keep over 100 pieces of equipment rolling double shifts.

Goodyear was there with precisely the *right* tires to take on the roughest jobs — and live to tell the tale of *savings* in time and equipment!

You too will find Goodyear "there" — with tires more enduring than ever—for they're made with Goodyear's new, Triple-Tempered (3-T) cord.

This exclusive patented 3-T process keeps Nylon or Rayon cord at its most bruise-resistant, heat-resistant point. It controls tire growth, reduces cracking, tread and body failures to new LOWS, keeps tires in shape for re-lugs and recaps. Remember, only Goodyear can give you 3-T Nylon or Rayon. Remember it next time you specify *any* type tire!

Goodyear, Truck Tire Department, Akron 16, Ohio



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Sure-Grip, All-Weather—T. M.'s
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Akron, Ohio

FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!

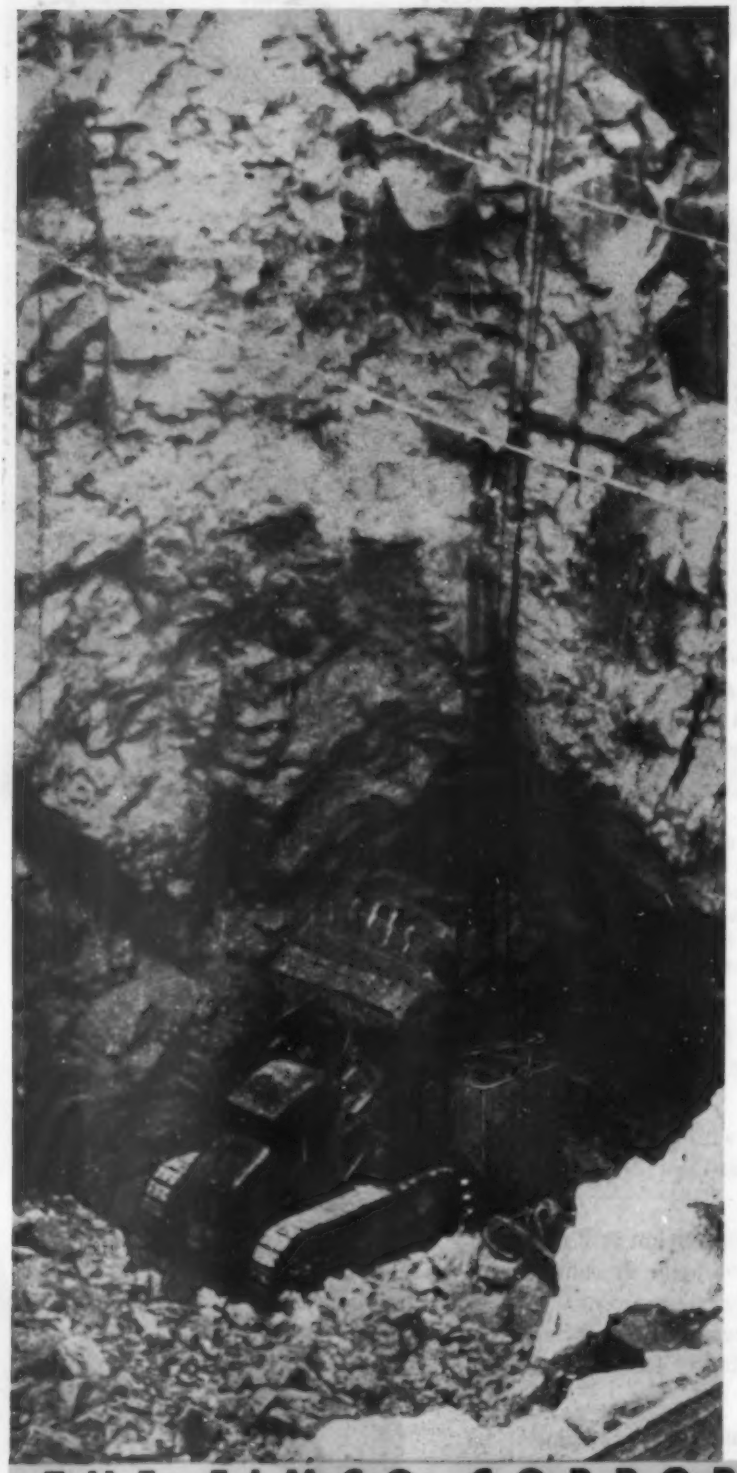
GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

And Remember

NOTHING ELSE
TAKES IT LIKE
3-T NYLON

PIT AND QUARRY, September, 1954, Vol. 47, No. 3. Published monthly by Pit and Quarry Publications, Inc., 431 South Dearborn St., Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy $.50. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1879. Postmaster: please send notices on Form 3578 and copies returned under Label Form 3579 to 431 South Dearborn Street, Chicago 5, Ill.



SHAFT SINKING WITH EIMCO TRACTORS

Eimco 105 tractors with excavating attachment are being used for mucking hard rock shafts on the Quebec Hydro job. The 105's are lowered into the shafts and dig their way down to the bottom of the blasted rock.

This is the toughest kind of work for any excavating equipment—only the Eimco was equal to the job. During the long winter, work continued on the job which required all types of well known heavy construction equipment of many makes and when spring came and the accounting was done, the Eimcos showed a higher percentage of availability than any similar equipment.

Eimco equipment is built for these harder than usual jobs. Heavy steel castings are used throughout on the 105. Greater maneuverability makes it usable on jobs where confined areas only are workable. Being able to dig below grade makes it practical in shaft work.

Wherever the going is tough — you'll find the best equipment for tractor, bulldozer or excavator work is the Eimco 105.

Write for more information.

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EIMCO

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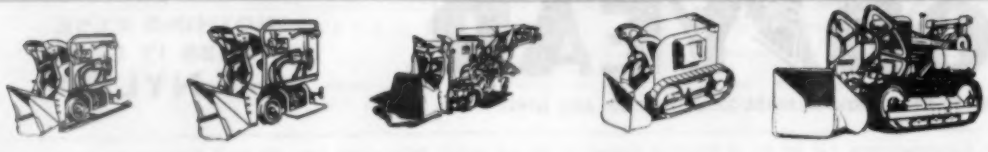

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* rugged, all-welded construction for heavy rock and ore, lighter construction for lighter bulk materials.

* optimum balance of loading, hauling, and dumping equipment for smoothest, most efficient production at lowest cost.

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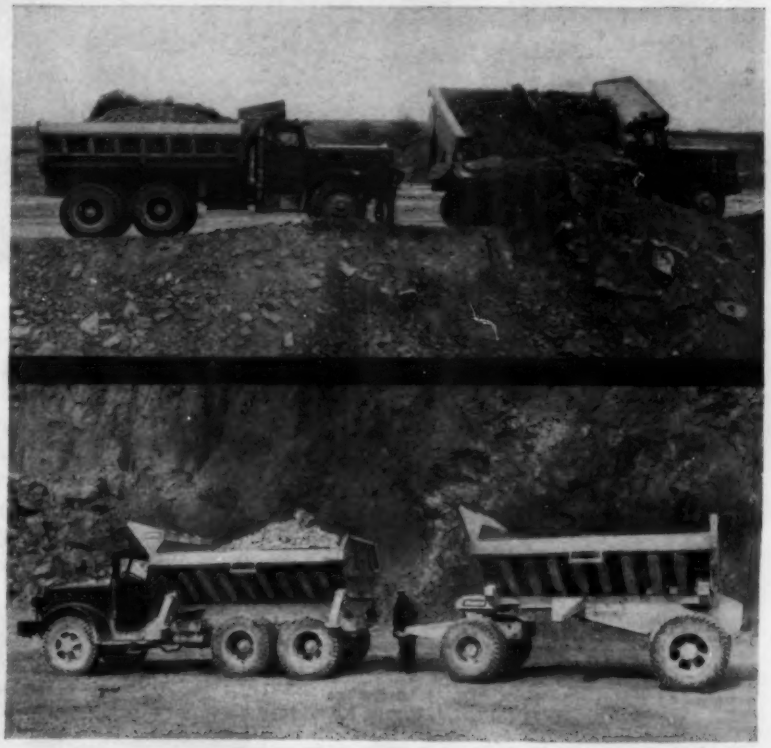

It pays to know *that your job requirements are* right *for the simple principles of side-dump hauling. Our survey of your transportation problem costs you nothing, does not obligate you in any way. Write today for complete information.*

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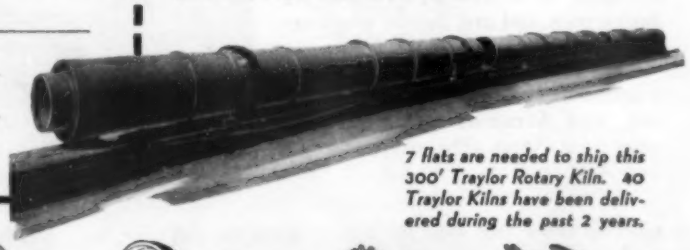
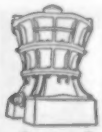


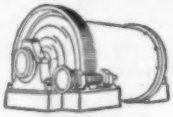
7 flats are needed to ship this 300' Traylor Rotary Kiln. 40 Traylor Kilns have been delivered during the past 2 years.



Primary Gyratory Crushers

Rotary Kilns

Secondary Gyratory Crushers



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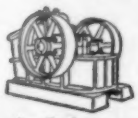
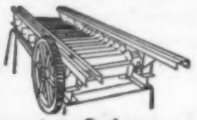


Jaw Crushers



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● Here's a piece of equipment you can put almost anywhere a truck will go. You can covert it to a Shovel or Dragline without repositioning the base and it will serve in the pit or up on top when the pressure is on for extra output.

As a Crane it assures high output on stock piling — it speeds up plant maintenance and new construction. It is the answer to loading and unloading cars and trucks and it handles any equipment that a standard crawler crane will handle from a clamshell to pile driver leads.

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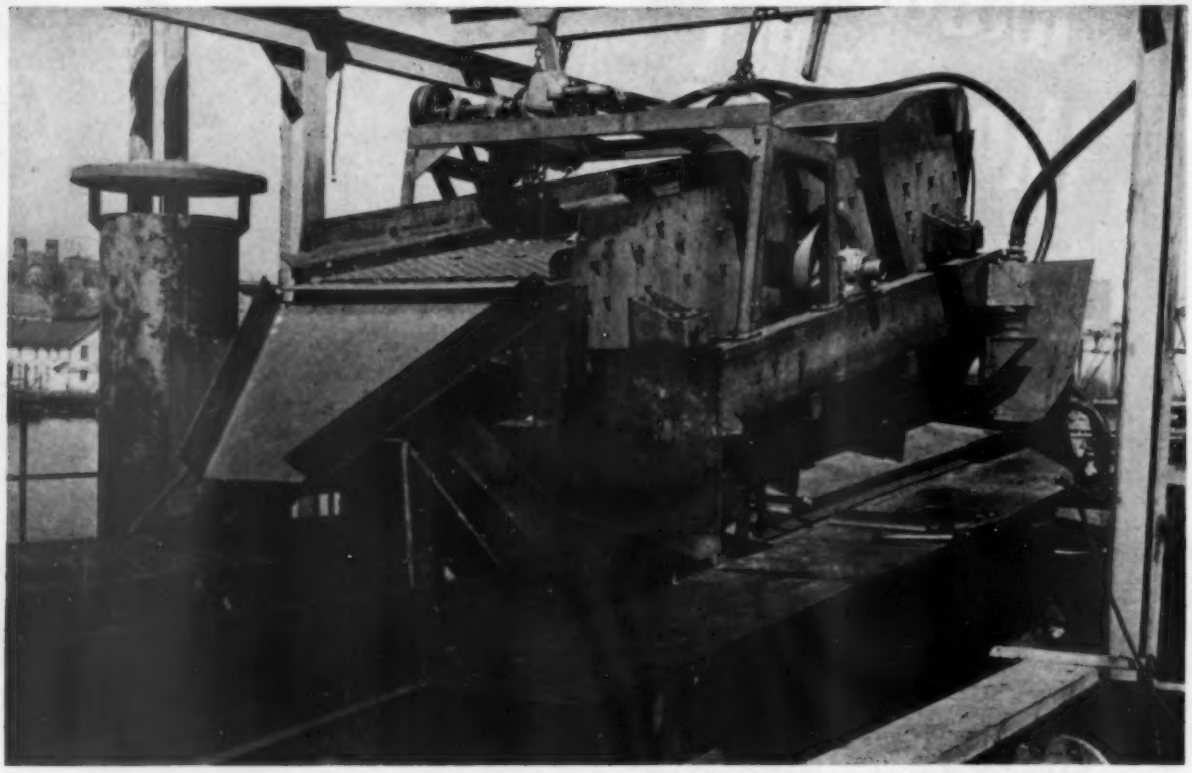
Keeping OYSTERS "HEALTHY" the job of this SECO SCREEN



Photograph Courtesy of Atlantic Fisherman Magazine

Separates Sand and Drills From Oysters on Deck of Dredge

Oysters are a far cry from aggregates . . . but this on-the-job report from F. Mansfield & Sons, New Haven, Conn., is another interesting example of SECO screenability on all types of difficult screening assignments.

This 4x12 double deck SECO is mounted on the deck of the suction oyster dredge, "Quinnipiac", which operates out of New Haven, Conn.

Here is a new and highly efficient method of ridding the oysters of drills (snails) which cling to and destroy the oyster unless removed. In this operation, the oysters are dewatered and cleaned as they pass over the top deck onto a rubber conveyor. The drills are shaken loose and drop through to the lower deck from which they are discharged and destroyed.

One of the factors that make this installation of such interest to anyone with a screening problem is the fact that this SECO screen does its job at sea, performing smoothly in spite of the pitching and rolling of the dredge caused by the sea.

Send for literature. Dept. PQ.

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TRUE CIRCULAR ACTION

VIBRATING SCREENS

Put Built-In Screening Accuracy on Your Job!

Only SECO has *fully*-controlled true circular action for smooth, accurate screening results. Over 350 models in single, double, triple and 3½ decks.

Write, wire, or phone for recommendation.

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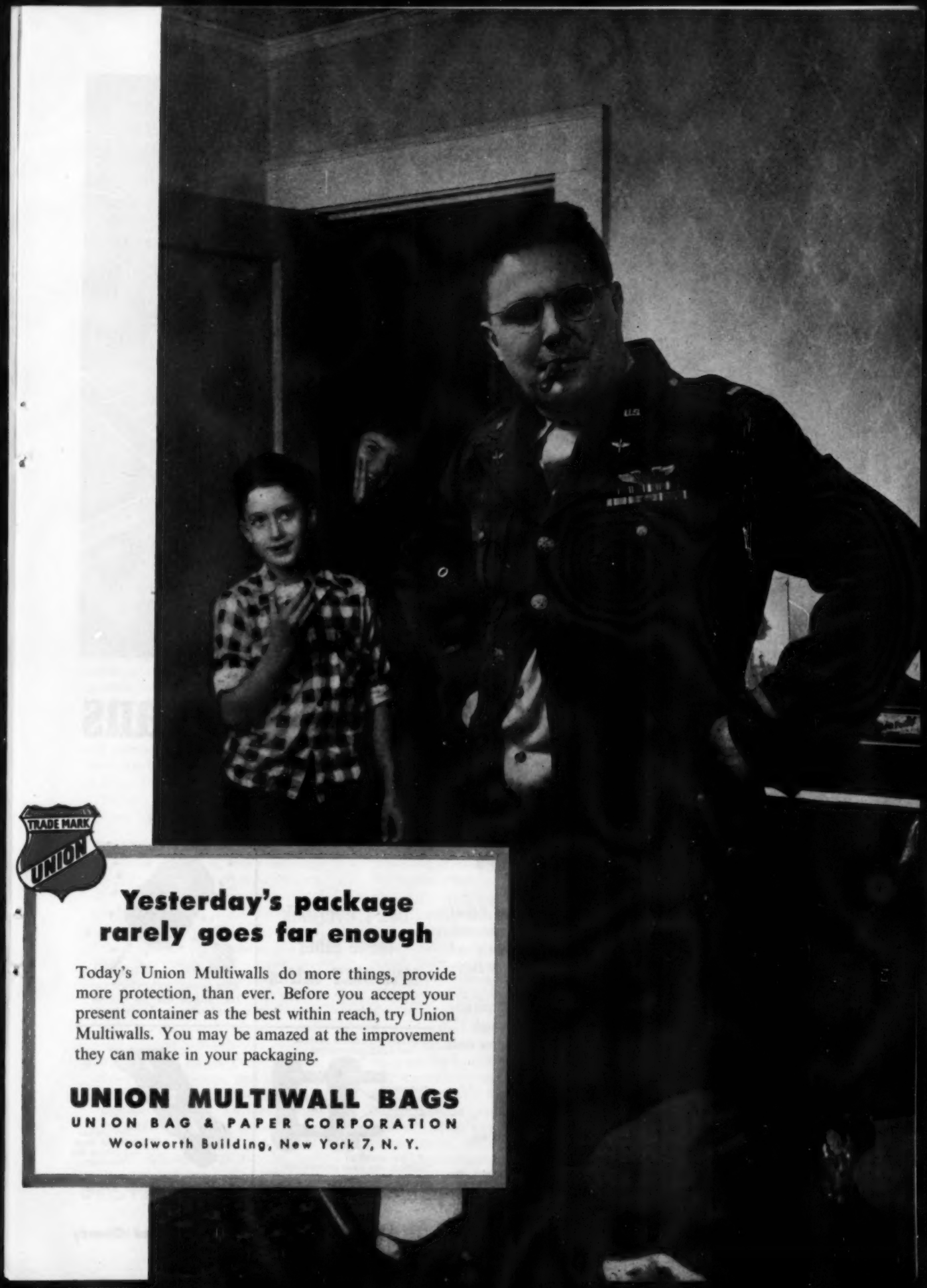

Yesterday's package rarely goes far enough

Today's Union Multiwalls do more things, provide more protection, than ever. Before you accept your present container as the best within reach, try Union Multiwalls. You may be amazed at the improvement they can make in your packaging.

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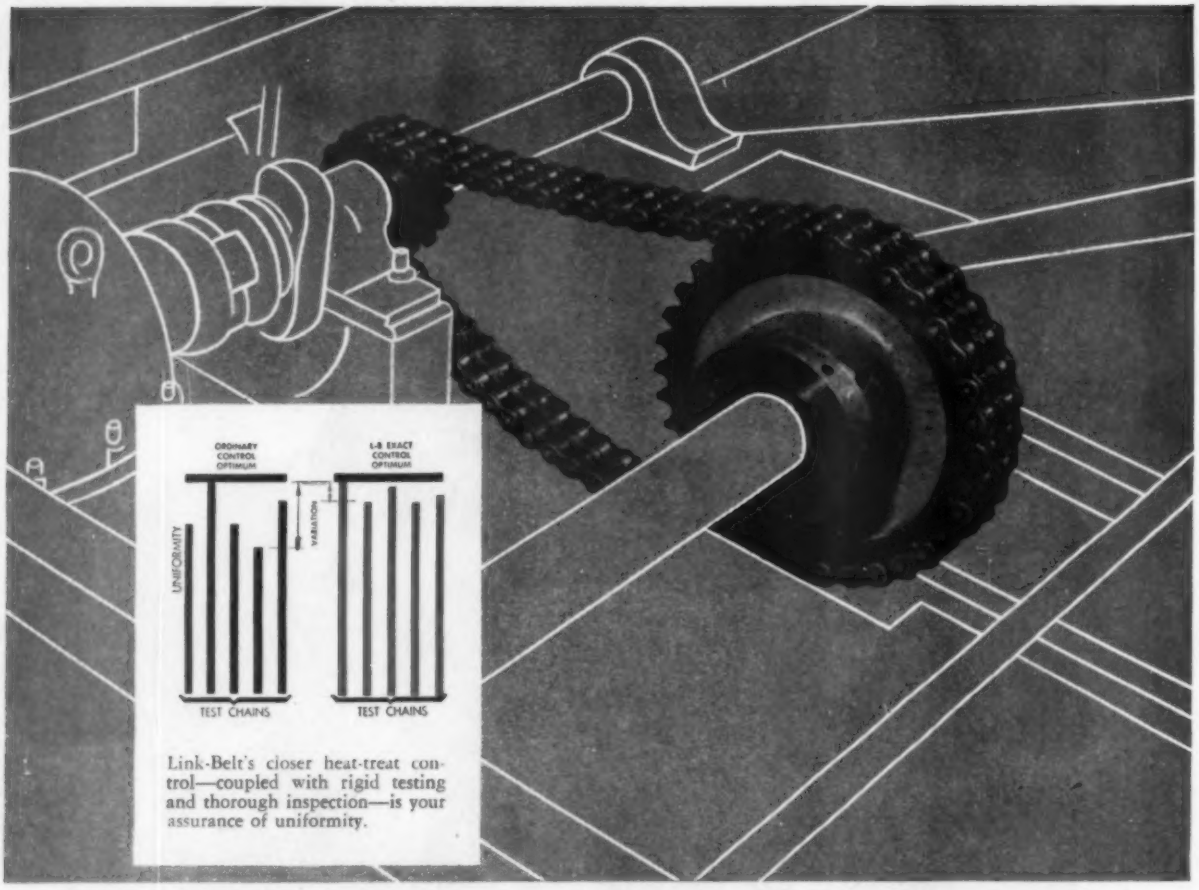


Link-Belt's closer heat-treat control—coupled with rigid testing and thorough inspection—is your assurance of uniformity.

Closer heat treat control means longer roller chain life!

But it's only one of many engineering extras you get from LINK-BELT

THE long-life record of Link-Belt Precision Steel Roller Chain is based on more than closer heat treat control. Consider such extra-wear features as shot-peened rollers and lock-type bushings. They're further assurance of Link-Belt's *built-in* extra life.

Link-Belt Roller Chain is available in single or multiple widths, ⅜″ through 3″ pitch. Double pitch, 1″ through 3″. For all the facts, call the Link-Belt office or distributor near you today, or write for Data Book No. 2457.

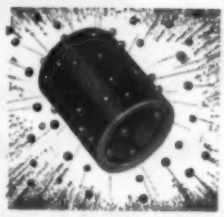
LINK-BELT

ROLLER CHAIN & SPROCKETS

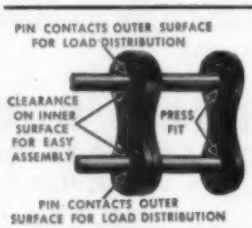
13,120-A

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle, Toronto, Springs (South Africa), Sydney (Australia). Sales Offices, Factory Branch Stores and Distributors in Principal Cities.

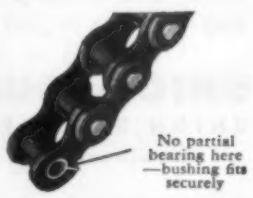
Don't overlook these other LINK-BELT extras



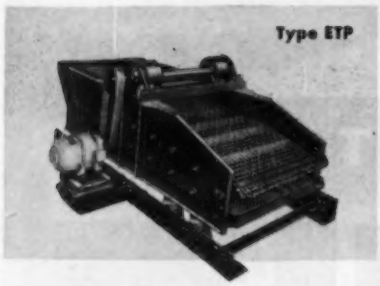
Shot-peened rollers have extra fatigue life for higher speeds, heavier loads.

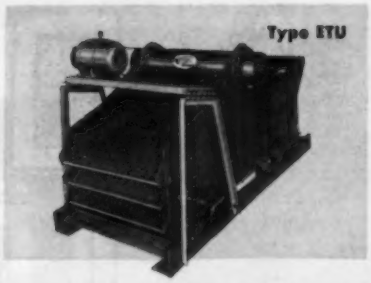

PIN CONTACTS OUTER SURFACE FOR LOAD DISTRIBUTION
CLEARANCE ON INNER SURFACE FOR EASY ASSEMBLY
PRESS FIT
PIN CONTACTS OUTER SURFACE FOR LOAD DISTRIBUTION

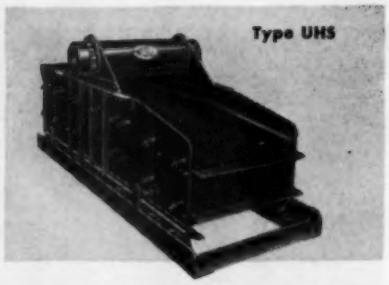
Couple, uncouple multiple-width chains easily.

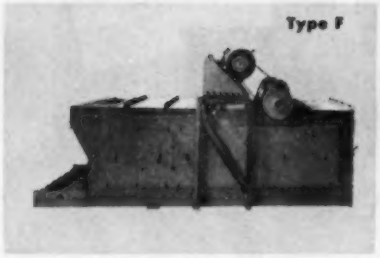


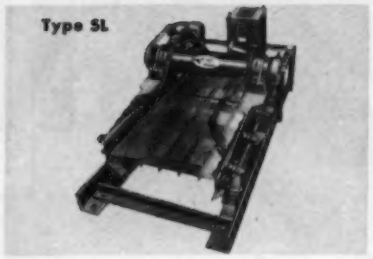
Lock-type bushings assure free articulation.

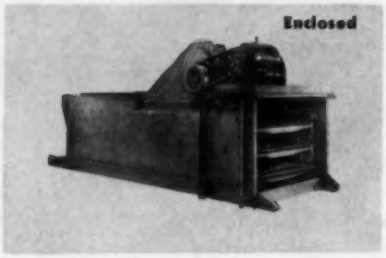












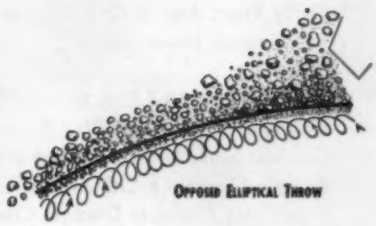
Which is the Best Screen for your job?

Combine today's *more exacting specifications* with *increasing competition* and you have two primary reasons why aggregates producers are turning to screens *designed to fit each specific job.*

As *specialists* in the design, manufacture and installation of vibrating screens, the Deister Machine Company offers a size and type to provide greatest efficiency and more trouble-free operation *on any specific job.*

Six types of Deister vibrating screen machines are shown above. Models and special application features on these machines are:

- *Type ETP.* This is the long proven Deister pillow-block, *end-tension* type vibrating screen. Available in 2½′ x 4′ size through 4′ x 8′ size screen. Over-size, heavy-duty, self-aligning spherical roller bearings mounted in labyrinth type housing, on top of frame away from direct contact with dirt, grit and moisture.
- *Type ETU. End-tension,* with unitized vibrating mechanism is available on 4′ x 8′ and larger size screens. Lifetime vibrating mechanism is demountable and readily inter-changeable as a unit. Renewable sleeves prevent wear on shaft and bearing housings.
- *Type UHS.* Heavy-Duty Scalping Screen has lifetime unit vibrating mechanism and features *side or transverse tension.* Divided screening sections identical in size permit shifting to distribute wear. Different size openings may be used on same deck. Built in 3, 4, and 5 foot widths; 10, 12, and 14 feet long and in single, double, and triple deck sizes.
- *Type F.* Horizontal vibrating screen. Developed by Deister especially for those installations where there is not sufficient headroom to permit the use of an inclined screen. Features the Deister Drop Deck providing greater screening area for the critical sizes.
- *Type SL.* Ag-Lime Screening system. Handles fine damp materials at high capacity without blinding. Much longer stroke, and higher speed, with graduated stroke feature assures more efficient sizing of sticky materials or extreme fines.
- *Enclosed.* Open top screens illustrated in this series are standard construction. Deister specialists are equipped to furnish screens requiring complete enclosing when needed in specific applications.



Deister screens grade faster, better because of Deister's exclusive opposed elliptical throw, which is illustrated above. This movement accurately controls the movement of material on the screen . . . at the input end the material is quickly stratified and moved forward rapidly to spread the load. As the discharge end is approached, the elliptical path leans backward. This has a retarding effect . . . and retains the near size material for maximum grading while the oversize is rapidly discharged.

Low screening angle on Deisters results in greater efficiency and minimum head room requirements. Long screen cloth life is yet another Deister feature . . . and vibration is *fully cushioned.* Specially designed oversize compression springs confine vibration to the screen itself.

Deister—a *pioneer* in the specialized design of machinery for the aggregates industry—has developed over 100 models of vibrating screens, which are available to fit any screening problem. Standard screens come in a variety of 1, 2, and 3-deck types in sizes from 2¼ x 4 to 5 x 14. All screens can be furnished with the Deister Electric Screen Heater.

Whatever your screening problem, call on Deister . . . your result will be a *more profitable operation.*

DEISTER

DEISTER MACHINE COMPANY 1933 East Wayne Street, Fort Wayne 4, Indiana

VOL. 47 SEPTEMBER 1954 No. 3

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TUBE MILL
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COST LESS because they
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Hundreds of repeat orders over a period of years, from cement plants covering a broad area, testify to the useful service of B&W Tube Mill Liners.
Long life is the answer. And that of course means lower overall cost.
The Babcock & Wilcox Co., Process Equipment Dept., Barberton, Ohio.
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editorial

Sight Saving

FOR some years now September has been observed nationally as "Sight-Saving Month" as a part of the health education activities of the National Society for the Prevention of Blindness, a 46-year old voluntary organization. It is a good thing, of course, to emphasize this subject; but the Society urges that constant care and watchfulness must be exercised the year around if we are to reduce the toll that eye disease and eye accidents are taking of human sight.

The Society states that at least one-half of the blindness occurring today is unnecessary; it is due to neglect—failure to recognize the warning signals of eye trouble; and failure to guard against avoidable accidents. This means that 27,000 more Americans will become blind this year, and that for half of them this blindness need not have occurred. Two out of every hundred American men and women who have reached the age of 40, the Society says, are suffering from an eye disease called glaucoma, whose early symptoms are frequently so imperceptible that the disease is called "the sneak-thief of sight". Fully one-half of these people are unaware of their condition. And yet, glaucoma, if undetected and untreated, can lead straight to total blindness.

In pointing out the need for intensified research on eye problems the Society cites two facts which, considered together, are more than a little startling:

1. The basic causes of the major eye diseases which lead to blindness are unknown.
2. The sum total of all funds available in the United States for research to discover these causes amounts to less than one penny per person per year.

Any individuals or companies desiring to help this cause can mail contributions to the National Society for the Prevention of Blindness, 1790 Broadway, New York 19, N. Y. The Society also invites requests for a free folder, *Your Wonderful Eyes*, which explains the simple steps each of us should take to enjoy good eyesight throughout our lives. The Society offers these six sensible suggestions:

1. Learn to recognize frequent headaches, blurred vision, colored rings around lights, and irritation of lids as nature's danger signals of possible eye trouble.
2. Have a regular, professional eye examination, at least once every two years after the age of 40.
3. If you are a parent, remember that while your child can't say his eyes are bothering him, he may be trying to when he rubs his eyes frequently, blinks excessively, and stumbles over small objects.
4. If a speck flies into your eye, don't rub it! Draw the upper lid down over the lower and let tears wash it away; failing this, let lukewarm water flow over the eye. If this doesn't work, see a doctor without delay.
5. Don't buy dangerous toys for youngsters, or playthings which are too old for the child. Keep scissors, knives, and screwdrivers well out of reach.
6. When you work—on the job or in your home shop—wear safety goggles or other eye protection if the chance of an accident exists.

Blasting Cap Accidents

IN a cooperative effort to cut down the toll of blasting cap accidents which will cause many deaths and injuries each year, especially among children, the United States Post Office Department and the Bureau of Mines recently joined forces in a nation-wide educational campaign. A two-color poster to inform children of what blastings caps are and to warn them to let them alone was distributed for display in 40,000 Post Offices across the nation. It shows four different types of blasting caps and admonishes youngsters to report to a policeman or some other adult if they find one.

A decade or so ago there were hundreds of blasting cap accidents a year. Largely through a nationwide safety program such accidents have been markedly reduced in recent years. There are, however, still far too many such accidents to children, and the danger is increasing with the rapid increase in child population and the growing use of explosives. The great expansion in mining, quarrying, road building, and construction has greatly increased the demand for commercial explosives; and where dynamite is used, blasting caps also must go. In the pit-and-quarry industries the danger is greatly increased by the encroachment of residential areas on operations which were originally far from any human habitation.

The use of explosives is becoming safer every year, due to improvements in the product by the manufacturers, the educational work that has been done on the handling and use of explosives, and the growing realization that blasting is a job for a trained specialist. Blasting accidents in nonmetallic mineral operations are now very rare.

The fact that there are still so many blasting cap accidents to children, however, is proof of carelessness on the part of some explosives users. Most of the blasting caps which kill, maim, or blind so many children and teen-agers were carelessly left where the latter could find them. A few perhaps are filched by young or irresponsible employees who have access to them. Young people are curious and they will light caps, throw them into fires, hammer them, or pick at them with knives or nails. Any of these methods can set off a cap.

Quarry and mine operators post their properties, but they are still held responsible for the injury or death of any child on their premises. This applies also to blasting cap injuries. For both humanitarian and economic reasons every explosives user should keep caps and explosives securely locked up and should allow them to be handled only by the blasting crews who use them and who should be held accountable for them. An accurate inventory should be kept on both caps and explosives.

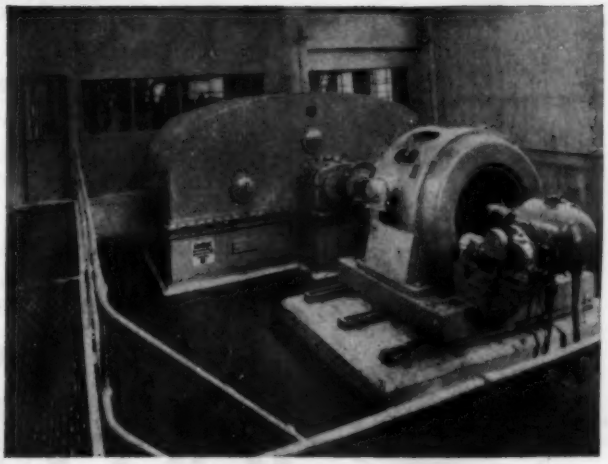
Walter E. Trauffer

FLS Symetro Drives

Years of continuous, reliable performance at highest efficiency and negligible maintenance.

Over 7500 HP transmitted through Symetro gears direct to trunnions of raw mills in Canadian cement plant illustrated above.

Driving station for large clinker mill showing motor and Symetro gear in separate enclosure (right).



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This simple idea saves money in V-Belt Costs

You can prove it in two minutes!

To prove how the CONCAVE SIDES of GATES VULCO ROPES *save money*, just make this simple test—

Bend *any* V-Belt that has *straight sides* (Fig. 1) and—as the belt bends—*feel* the sides *bulge out* (Fig. 1-A). This out-bulge concentrates the wear at the points shown by arrows—and this naturally shortens the life of a *straight-sided* belt!

Now bend a Gates Vulco Rope with CONCAVE SIDES (Fig. 2)

(U. S. PAT. 1813698)

You find that the CONCAVE SIDES *fill out* and become perfectly straight. They thus press *evenly* against the V-pulley. All wear is distributed *uniformly* across the *full width* of the GATES VULCO ROPE—and this means *longer* belt *life* and *lower* belt *cost* for you!

When you buy V-Belts, be sure to get the V-Belt with the CONCAVE SIDES—the GATES VULCO ROPE!

VULCO ROPE DRIVES

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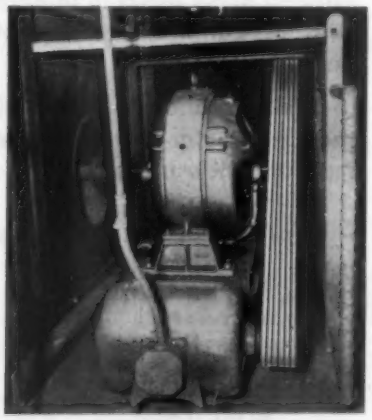
DENVER, U.S.A.

Gates Engineering Offices and Jobber Stocks are located in all industrial centers of the United States and Canada, and in 70 other countries throughout the world.



Typical Gates Vulco Rope Drive—the Gates V-Belts are built with Concave Sides to insure longer belt wear.

CS-548

LOAD 'EM FULL

Eimco 105's with excavator attachments dig in forward motion and discharge overhead to the rear. Standard models will load ordinary trucks, high discharge models will easily load high railroad gondolas.

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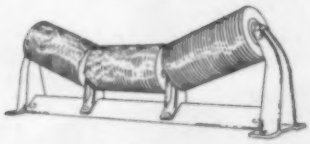
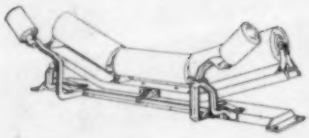
(PATENTS APPLIED FOR)

Years of customer research, laboratory development and field testing have produced this great advancement in the art of belt conveying. Built strong and well balanced for long, trouble-free service. Write for details.

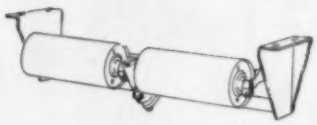
a type and size for every need . . .



IMPACT ABSORPTION IDLER



TROUGHING TRAINING IDLER

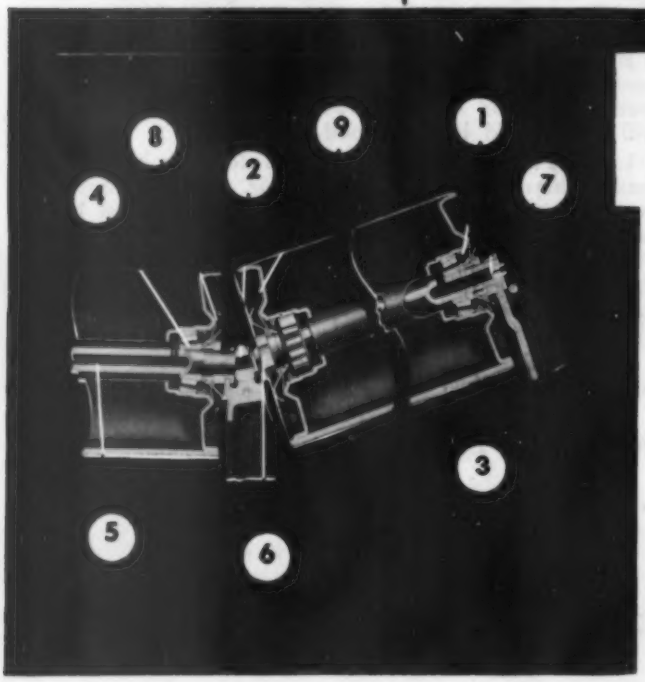


RETURN TRAINING IDLER

SPOOL RETURN IDLER

RETURN IDLER

SPOOL RETURN TRAINING IDLER



1. Factory lubricated, adjusted and permanently sealed with two flexible contact seals to keep dirt out and belt-damaging grease in, *for the life of the idler.* Fitted with vented plugs to prevent promiscuous relubrication.
2. Where desirable to relubricate or freshen the grease after long operating periods, "Neoprene" shaft connectors provide for relubrication from either end.
3. Heavy, welded steel pipe of uniform wall thickness. Roll ends machine smoothed to protect belt and workmen.
4. High-capacity tapered roller bearings snug-fit on shafts.
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7. Removable straps on center and end stands lock rolls in place during shipment and operation . . . facilitates removal of rolls.
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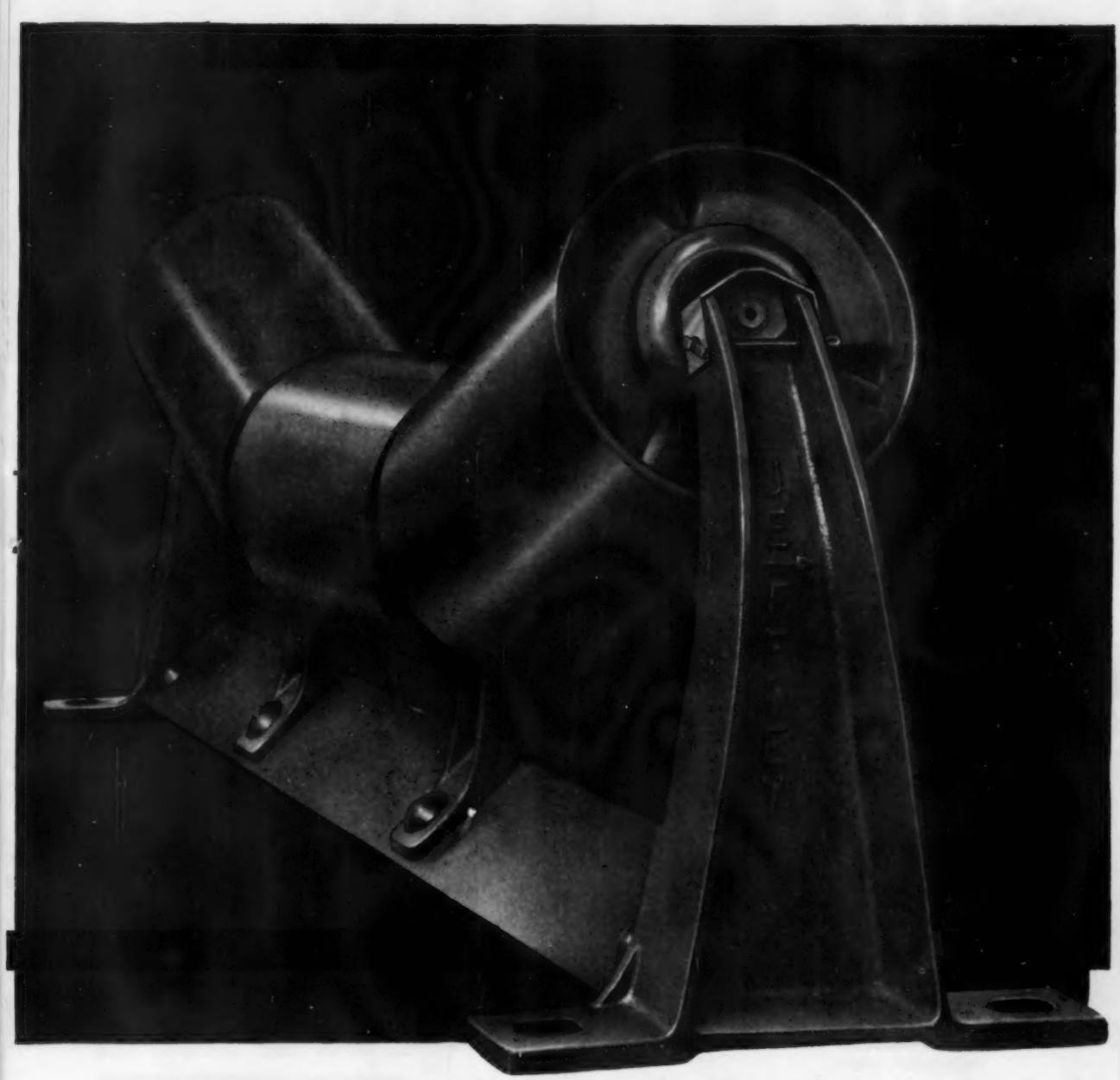
9. Formed steel ends pressed and welded into place for maximum strength and true running rolls.



20° TROUGHING IDLER . . . locked-in roll assemblies form truss type construction . . . balanced design gives perfect distribution of weight and stresses . . . 2° tilted end stands for engineered belt training . . . minimum space between rolls prevents damage to belts . . . die straightened, high-strength, streamlined stands set up maximum strength-to-weight ratio . . . self-cleaning, inverted angle base . . . mounting feet cast integral with end stands to develop full strength of the idler . . . all types designed to provide the best in belt conveying operations.

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IF IT'S MINED, PROCESSED OR MOVED
. . .IT'S A JOB FOR JEFFREY!

How to move

14-TON

limestone blocks

Handling big quarry blocks from pit to loading tackle is one of the toughest 'dozing jobs that can be given a machine. Here at Walker Cut Stone Co., Junction City, Kansas, a veteran CAT* Diesel D8 Tractor with No. 8S Bulldozer moves 20 to 30 of these huge blocks every day. Their average weight is 10 tons and they frequently run as high as 14 tons.

The D8 has done this kind of work steadily since 1948. In addition, it is used for stripping, cleaning the quarry floor, terracing, pond work and timber clearing. Fred A. Dietrich, maintenance superintendent, says: "The built-in ruggedness of the No. 8S 'Dozer will stand up longer under this rough treatment than anything else we know."

Take a close look at a Caterpillar-built Bulldozer and you'll see why. It's engineered to match the power and traction of the big yellow crawler tractor. Welded box-section side arms give it strength and rigidity. Heavy reinforcing ribs back up the blade. And the reinforced lower edge and tough, reversible cutting edge of high carbon steel add to its long life.

Your Caterpillar Dealer stands ready to demonstrate Caterpillar machines on your job. And he backs their profitable work life with top quality service and genuine parts. Call him today.

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**NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE**

news of the industry

PIT AND QUARRY

Universal Atlas Announces Programs for Expansion At Independence, Fairborn

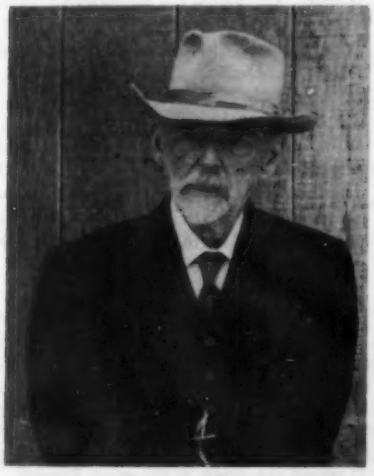
Plans to proceed with construction programs at the Fairborn, Ohio, and Independence, Kans., plants of Universal Atlas Cement Company were revealed by President C. B. Baker.

It is proposed to proceed with an extensive construction program at Fairborn which will include expanded finished cement storage, the addition of a rotary kiln, and other facilities which will increase by one-third the annual capacity of this plant. J. Palmer Camm is manager of the Fairborn plant.

The proposed construction at the Independence plant will include installation of a new raw materials crushing plant, as well as facilities for raw materials storage, drying, and blending, and the replacement of outmoded equipment. Paul Kirkbride serves as manager at the Independence plant.

Anson S. Blake Retires After 50 Years in Industry

Anson S. Blake, who has been president of Blake Brothers Company, Richmond, Calif., for the last 50 years, recently resigned from this post, to become chairman of the board of directors. Mr. Blake has headed the firm, which produces bituminous aggregates, crushed stone, dry batched aggregates, ready-mixed concrete, and riprap, since 1904, when it was incorporated.



Anson S. Blake

Succeeding Mr. Blake as president is Henry C. Steinbach, who was formerly vice-president. John N. Asmussen will serve as vice-president.

Gypsum-Rich Land Bought By Ruberoid in Indiana

The Ruberoid Company of New York bought 1,250 acres of land in Martin County this week in a race for the rich gypsum deposits.

Its offer was similar to that of U. S. Gypsum and National Gypsum for mining rights.

New Jersey Safety Law For Mines and Quarries Signed by Gov. Meyner

Governor Meyner has signed into New Jersey law a bill providing the first major revision of state mine and quarry regulations since 1919. Under the new law, the State Department of Labor and Industry is given a $70,000 appropriation with which to establish a mine safety section with inspecting and enforcing powers.

The measure provides that underground mines must be inspected at least once every three months, while other working mines and quarries must be inspected at least twice a year. The commissioner is empowered to promulgate rules for mine safety and to issue cease and desist orders in the event of a crisis.

Coming Events

September 20-24, 1954 — San Francisco. Annual Metal and Nonmetallic Mining Convention and Exposition, American Mining Congress. Civic Auditorium.

September 20-22, 1954—Milwaukee. Operating Division meeting, National Lime Association. Pfister Hotel.

October 5-9, 1954—Lake Placid. Industrial Minerals Division meeting, American Institute of Mining and Metallurgical Engineers.

October 18-22, 1954 — Chicago. 42nd National Safety Congress and Exposition. Conrad Hilton, Congress, Morrison, LaSalle, and Palmer House hotels.

October 20-22, 1954 — New York. Fall meeting, National Industrial Sand Association. Hotel Plaza.

January 9-13, 1955—Miami. 39th annual convention, National Sand and Gravel Association and 25th annual convention, National Ready Mixed Concrete Association.

January 10-13, 1955—New Orleans. Annual meeting and exhibit, American Road Builders Association. Roosevelt Hotel.

January 15-18, 1955—Washington, D.C. Annual convention, National Agricultural Limestone Institute, Inc. Statler Hotel.

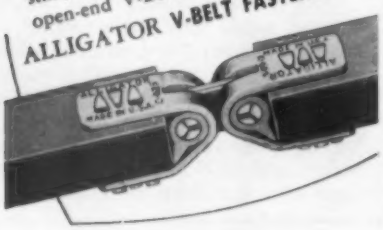
January 24-27, 1955—Cleveland. 35th annual convention and exhibit, National Concrete Masonry Association. Cleveland Public Auditorium.

February 7-9, 1955—Cincinnati. 38th annual convention, National Crushed Stone Association. Netherland Plaza Hotel.

WHICH V-BELT *is best for you?*

If the correct size of endless V-Belt is not readily available, or if you have to tear down machinery to install, then the best belt to use is open-end V-Belting fastened with

ALLIGATOR V-BELT FASTENERS



★ In this way you can make up V-Belts in *any length* to fit *any drive* the fast economical way — V-Belts that perform exceptionally well.

★ In contrast to link-type belts these ALLIGATOR fastened V-Belts have just *one* strong joint . . . *stretch and follow-up maintenance are reduced to a minimum.*

ALLIGATOR INTRODUCTORY V-BELT DRIVE UNITS contain V-Belting, Fasteners and Tools — everything you need in one compact package to make up V-Belts quickly. Available in sizes A, B, C & D.

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ALLIGATOR V-BELT FASTENERS

Cover Picture....

● The cover photo this month shows a barge-unloading operation at the new distribution terminal of the J. L. Shiely Company, St. Paul, Minn. The barge yard, one of the most modern in the industry, has a capacity exceeding 100,000 cu. yd.; facilities include two radial stackers and several tunnel belt conveyors leading to the yard hoppers. In this scene a Manitowoc 2½-cu. yd. Lococrane is unloading a 500-ton barge. Note the Allis-Chalmers front-end loader being used for cleanup. For the story of this new terminal, as well as Shiely's new gravel plant on nearby Grey Cloud Island, see pages 68-77 of this issue.

Riddle Quarries Headquarters Moved to Salina, Kan.

Riddle Quarries, Inc., for many years located at Marion, Kan., have moved their headquarters to Salina. The firm has quarries at Little River and Marion and is preparing to put one in near Clay Center. Affiliated with the quarry company is Riddle Soils Service, Inc.

Riddle quarries and processes lime for farm uses and has a farm spreading service, furnishes crushed limestone for road work, ships in and markets rock phosphate for farm fertilizer, and has a road crew which specializes in rock excavation and other road work. Shop operations will be left in Marion but may eventually be moved to Salina. John H. Riddle, president of the firm, is vice-president of the National Agricultural Limestone Institute, Inc.

The tenth annual convention of the National Agricultural Limestone Institute, Inc., will be held in Washington, D. C. on January 17 and 18, 1954, at the Hotel Statler. On January 15 there will be an executive committee meeting; and on the following day the board of directors will convene.

R. G. Knox Named to Head P.C.A. Public Relations Succeeding Joseph N. Bell

Richard G. Knox has been appointed manager of the Public Relations Bureau of the Portland Cement Association effective September 1, 1954, according to an announcement by Carl D. Franks, president of the Association. He succeeds Joseph N. Bell, who has resigned to devote full time to magazine writing and public relations consultant work.

Mr. Knox joined the Portland Cement Association in March, 1948, as a Public Relations Bureau staff writer. In January, 1952, he was made assistant manager, the position he held at the time of his recent appointment.

From 1943 to 1946 Mr. Knox served with the U.S. Marine Corps in the Pacific theater. Prior to joining P.C.A., he was news editor of American Publications, Inc., and editor of the *Chicago Market News*, business publications.

Kelly Island Lime Control Passes to Greenlands Corp.

Kelly Island Lime & Transport Co., Cleveland, Ohio, recently announced that over 97 percent of its common stock has been purchased from stockholders by the Greenlands Corporation. The latter concern was organized by Wertheim and Co. and Lazard Freres and Co., New York City investment banking houses, to acquire these shares of stock, at $28.50 a share, less transfer charges.

All officers of the new company, to be called the Kelly Island Company, are the same as those of the old, and the policies remain unchanged. The identical directors will administer its operations, headed by Ralph L. Dickey, president, plus James S. Adams and George J. Ames, both of Lazard Freres, and Allen C. DuBois and A. W. Kleinbaum, both of Wertheim and Co.

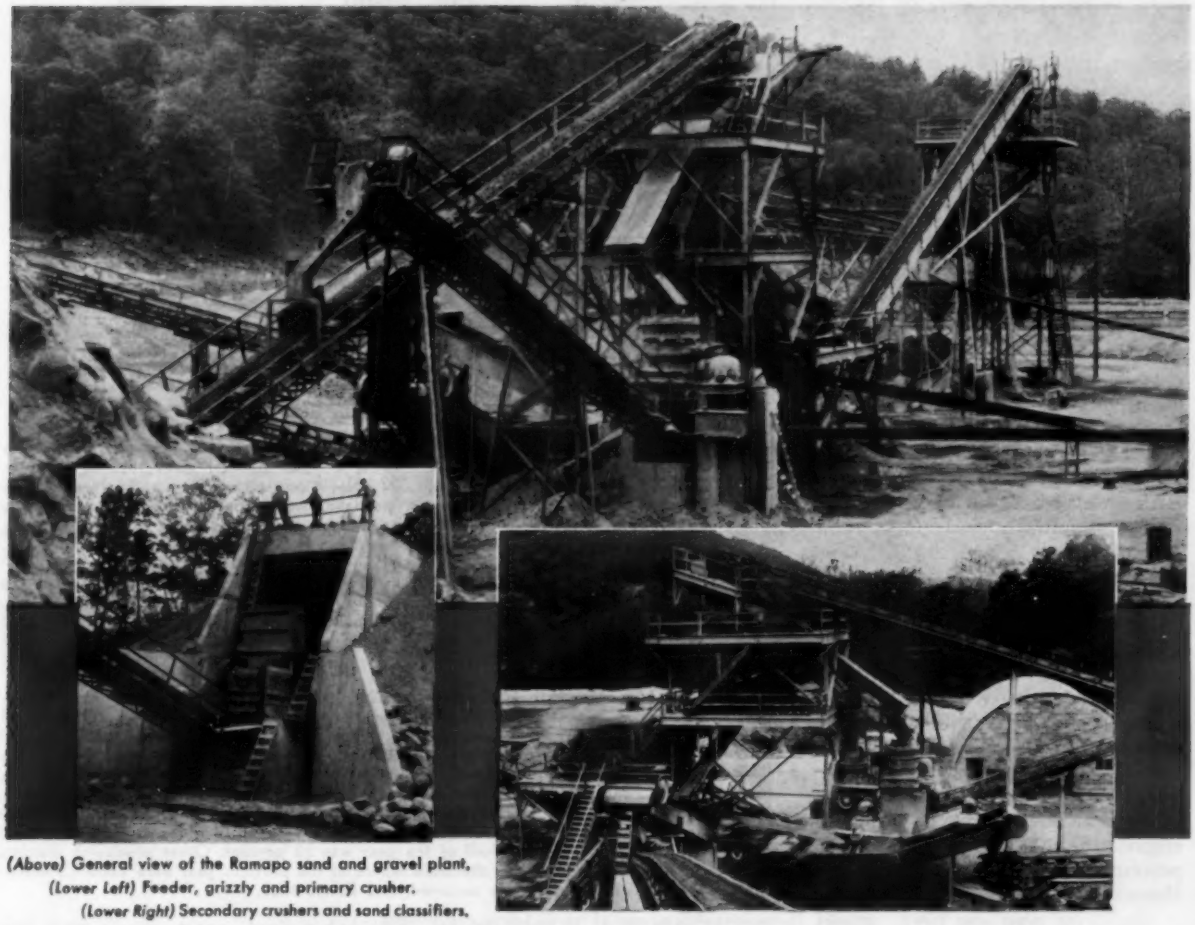
On December 31, 1953, Kelly Island Lime and Transport Co. had current assets of $6,700,000. It earned $4.41 a share that year, compared with $2.19 in 1952. Net sales totaled $13,100,000, compared with $11,900,000 a year earlier.

A new $8,000,000 asbestos mine was opened officially at Black Lake, Ont., Canada, recently by A. S. Johnson, president of the Johnson Asbestos Co. The mine is expected to provide employment for some 225 workers. About 6,000 tons of rock will be mined daily.

for heavy construction programs

COMPLETE TELSMITH PLANT

meets all requirements



(Above) General view of the Ramapo sand and gravel plant, *(Lower Left)* Feeder, grizzly and primary crusher, *(Lower Right)* Secondary crushers and sand classifiers.

Near the New York Thruway, and close to many other heavy construction jobs, this complete Telsmith plant meets all their aggregate requirements. Built by Ramapo Sand & Gravel Co., Ramapo, N. Y. and designed by Telsmith engineers, it has Telsmith equipment throughout. It makes three sizes of gravel, and concrete and mason sand, all washed. Be sure that yours is a profitable Telsmith plant. Send for Bulletin 266.

ALL Plant Equipment is TELSMITH

36″ x 6′ Heavy-Duty Plate Feeder • No. 540 Rotary Grizzly • 18″ x 30″ Jaw Crusher • 36-S and 367-S Gyrasphere Crushers • 5′ x 14′ Double Deck Scalper Dry Screen • 5′ x 14′ Double Deck Vibro-King Wet Screen • 60″ x 18′ Rotary Washing Screen • Two 4′ x 12′ Triple Deck Vibro-King Finishing Screens • 24″ x 20′ Twin Screw Sand Classifier • 30″ x 25′ Twin Screw Sand Classifier • Eight Telsmith-BG Belt Conveyors: 30″, 24″, 18″ wide, total length 892′.

G-24

SMITH ENGINEERING WORKS, 504 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

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Marcus Eqpt. Co., New Hudson, Mich. • Rish Eqpt. Co., Cincinnati 14, & Portsmouth, Ohio—Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. Robert S. Bailey, 816 W. 5th St., Los Angeles 17, Calif. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif. • Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash.

July Construction Volume Nears $2,000,000,000—7-Month Total "Highest"

Construction activity in the months ahead will continue at high levels, it was indicated when the F. W. Dodge Corporation announced its July and seven-month totals of Dodge Reports on contracts for future construction.

The July total of $1,836,935,000 of contracts in the 37 states east of the Rockies set a new July high in Dodge's long history in construction news and marketing—up 2 percent over July, 1953, and 6 percent above June, 1954.

Also, an all-time new high for the first seven months of any year was broken with a total of $11,088,084,000, up 14 percent above the first seven months of 1953, and also above the previous seven-month high set in 1951, which included $980,000,000 in Atomic Energy Commission projects alone.

Dodge pointed out that the monthly average total for the first seven months was $1,584,000,000, and that the final five months need average only $1,271,000,000 to tie last year's all-time 12-month high.

Seven-month categories, compared with the same period of 1953, follow: nonresidential, $4,049,522,000, up 9 percent; residential, $4,726,131,000, up 21 percent; heavy engineering, $2,312,431,000, up 12 percent.

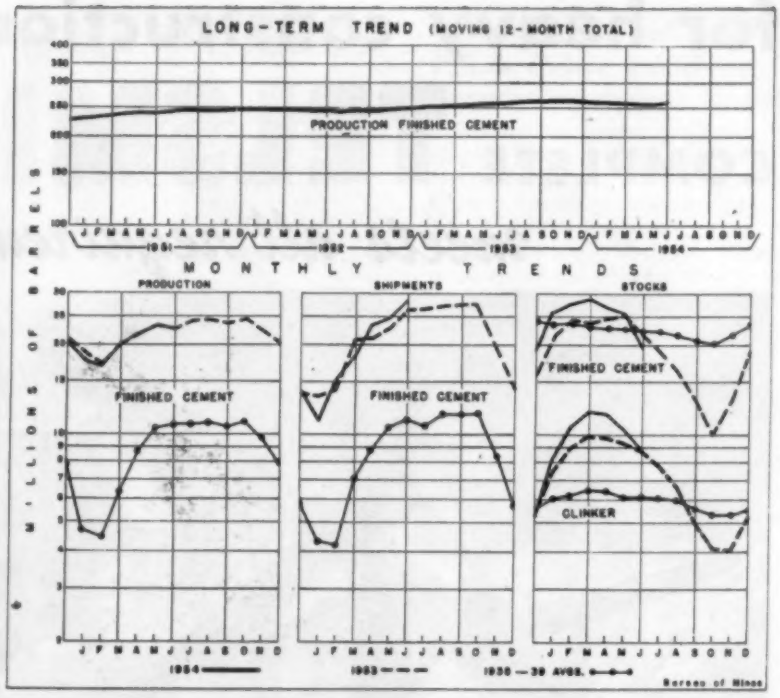
July categories were as follows: nonresidential, $641,513,000, down 2 percent from June and 16 percent below July, 1953; residential, $745,440,000, up 3 percent over June and 14 percent above July, 1953; heavy engineering, $449,982,000, up 26 percent over June and 20 percent above July, 1953.

Big U. S. Gypsum Expansion And Extra Dividend Okayed

Directors of U. S. Gypsum Company recently authorized an $11,000,000 expansion program and declared an extra dividend of $2.00 on the company's common stock.

Regular dividends of $1.75 a share on the 7 percent preferred and $1.00 a share on the common stock were also voted. All dividends are payable Oct. 1 to stock of record Sept. 3.

The $11 million in new facilities included: a new gypsum board and plaster plant at Shoals, Ind.; an increase of 50 percent in the capacity of the Jacksonville (Fla.) board and plaster plant; and a new steamship to supplement the company's present fleet serving seaboard plants.



SUMMARY—Production of finished portland cement in June, 1954, as reported to the Bureau of Mines, totaled 22,802,000 bbl.—about one-half percent more than in the preceding June. Mill shipments totaled 28,632,000 bbl.—8 per cent more than in June, 1953—while stocks of 19,582,000 bbl. of finished portland cement on hand at the end of the month were 9 percent lower than those on hand June 30, 1953. Clinker production during the month amounted to 21,125,000 bbl.—5 percent less than clinker production in June, 1953.

PRODUCTION—One hundred and forty-seven (147) plants located in 37 states and Puerto Rico reported production of 22,802,000 bbl. of finished portland cement during the month, compared to 22,232,000 bbl. in June, 1953. Cumulative reports for the first six months of 1954 show that production was 1 percent lower and shipments were 3 percent higher than in the same six months of 1953.

SHIPMENTS—Mill shipments of finished portland cement totaled 28,632,000 bbl., 8 percent more than in the same month of the preceding year. Shipments were higher in 17 districts and lower in 3 districts compared to shipments in June, 1953. Gains of 10 percent or more were recorded in 14 districts, with the largest percentage increases registered by the eastern Missouri-Minnesota-South Dakota, Colorado-Arizona-Wyoming-Montana-Utah-Idaho, western Pennsylvania-West Virginia, Tennessee, Kansas, Alabama, and Iowa districts. However, due largely to strikes in the cement industry, shipments in the New York-Maine district were 43 percent lower in June, 1954, than in June, 1953, and the cumulative decline for that district during the first half of the year was 20 percent. Other producing districts reporting lower shipments than in the same month of the previous year were eastern Pennsylvania-Maryland, where strikes also occurred, and Puerto Rico.

STOCKS—Mill stocks of 19,582,000 bbl. of finished portland cement were on hand June 30, 1954—9 percent less than at the end of June, 1953—while stocks of clinker totaled 8,567,000 bbl.—3 percent less than on the same date a year ago.

INDUSTRY NOTES—One new dry process plant has been recently completed and put into operation. It is owned by the Southern Cement Company and located at Roberta, Shelby County, Alabama. Extensive new facilities have been put into operation at the Sugar Creek, Missouri, plant of the Missouri Portland Cement Company. This operation will be considered as a single plant in reports compiled by the Bureau of Mines.

R. B. Utt to Serve on Board Of N.S.G.A. Mfrs. Division

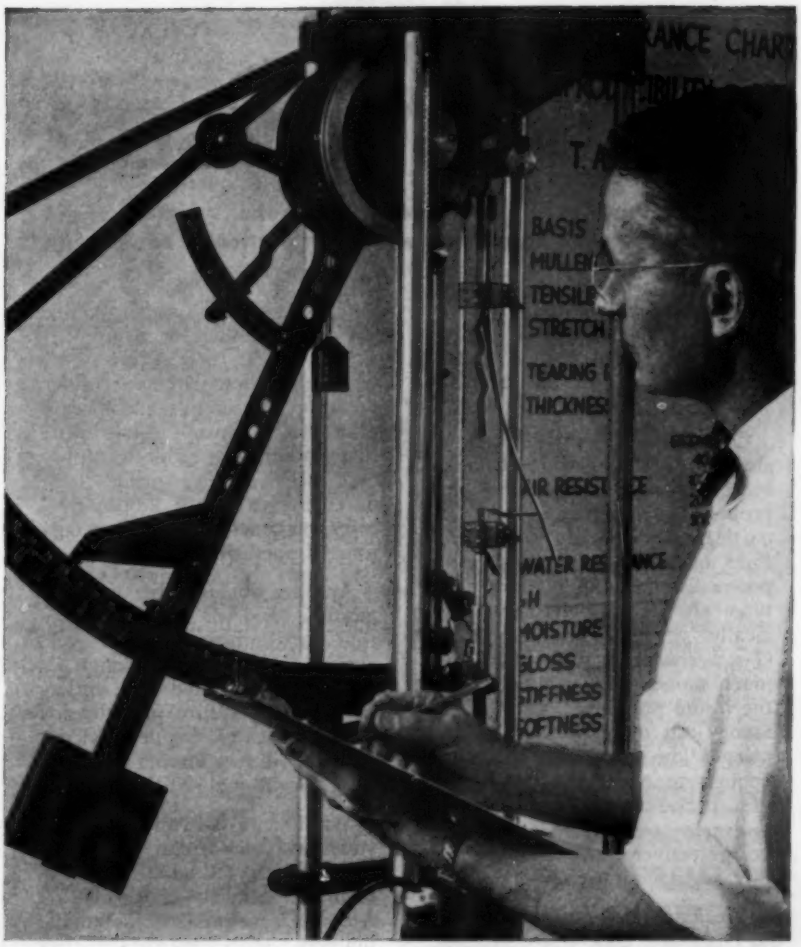
Ralph B. Utt, general manager of the Wemco Division, Western Machinery Company, has been appointed to fill the unexpired term of Robert Hernlund, also of Wemco, on the board of directors of the Manufacturers' Division, National Sand and Gravel Association.

This appointment was necessitated when Mr. Hernlund, named to the board last February, took a two-year's leave of absence from Wemco. He will be located in the Philippine Islands for the next two years.

Calaveras Cement Company of San Francisco set new records in 1953 with a net income of $950,649, or $2.56 a share on sales of $8,518,166, compared with $160,002 or 43 cents a share on sales of $5,284,777 for 1952.

No. 1 of a series

How Bemis makes GOOD multiwall bags for you



A.R. Ewing, director of the Bemis Paper Control Laboratory, has twenty-nine years' experience in this field. He is shown operating the laboratory's electro-hydraulic tensile tester, one of the many precision devices that make the Bemis laboratory probably the most complete in the country devoted to bag papers.

Use good paper . . . test it . . . prove it!

Bemis sets high standards for the various papers used in making Bemis Multiwall Bags. And we are able to maintain these standards because we buy our paper from a variety of top sources. These multiple sources are the key—if one should fall below par, the others are there to supply our needs. We don't have to take less than the best.

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Hercules engineers will assist you in the proper selection of the most economical type of engine for your particular equipment.

Many of our customers have asked us, "Which type of engine would be best for me?" Perhaps this same question has entered your mind at one time or another.

Of course, there are many governing factors which should be considered in selecting the proper type of engine for a particular piece of equipment. First of all, how much horsepower is needed? Is there a type of fuel which costs less locally . . . gas, gasoline, L.P. Gas, kerosene or fuel oil? How much money will be involved in the initial purchase? How much money can you expect to save by using a low-cost fuel? Will it be enough to offset the extra cost of a special type of engine? These and many other questions should be objectively answered before any engine is purchased.

We have no particular cause to champion and do not attempt to take sides or promote the use of one fuel over the other. As you know, we manufacture all types of internal combustion engines to operate on any fuel that is readily available. (Natural gas, L.P. Gas, kerosene, diesel fuel, gasoline, etc.)

The basic Hercules gasoline engines are adapted by minor changes to operate on different spark-ignition fuels. The Hercules diesel engines are compression ignited — specifically designed for operation on diesel fuel.

We have, however, maintained several similarities between the Hercules spark-ignited and the Hercules diesel engines which we think are very important. First of all, gasoline and diesel engines of comparable piston displacement have similar mounting dimensions and operating characteristics. Generally speaking, this makes it possible for equipment to be powered by either Hercules gasoline or diesel engines without creating any major installation problems. Thus, equipment manufacturers are able to supply customers with the proper type of engine to assure "top-notch" economies, according to the customers' operating conditions.

Another similarity between our gasoline and diesel engines, is that they both are of the 4-cycle design. The 4-cycle design is universally accepted and understood. This feature provides for less complicated engine servicing and in addition, service is readily available throughout the country.

What does all this mean to you? Maybe we can sum it up in our motto, "Engine Manufacturing Specialists Since 1915". Actually, we're custom engine builders with manufacturing facilities. Our engineering and sales policy is to design and sell engines to meet the exacting needs of our customers.

As a result, we have 70 basic models of gasoline and diesel engines which range from 3 to 500 H.P. They are available in many different designs . . . vertical and horizontal engines, special fuel handling equipment, various types of flywheels, etc. . . . in fact, we probably have an engine that will fit your particular needs to a "T".

Whether it's Agricultural, Oil Field, Automotive, Construction, Industrial, Marine or any other engine application, our engineers will gladly assist you in the proper selection of power for your equipment. Give us the details, so that we understand your problem, and we'll provide the answers to your power problems.

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Annual A.I.M.E. Meeting— Industrial Minerals Div. At Lake Placid, N. Y.

The annual meeting of the Industrial Minerals Division of the American Institute of Mining and Metallurgical Engineers will be held at Whiteface Inn, Lake Placid, New York, on October 5-9. Highlights of the program are:

TUESDAY, OCT. 5

Registration all day.

WEDNESDAY, OCT. 6

Morning

"Geology of the Adirondacks," by Matt S. Walton, Jr., Yale University.

"Mineral Economics of Upstate New York," by John A. Graham, New York State Science Service.

"Geological Control of Adirondack Mineral Deposits," by A. E. J. Engle, Calif. Institute of Technology.

Afternoon

"Anorthosite as an Industrial Mineral," by J. G. Broughton, New York State Science Service.

"Operations of International Talc Co.," by F. G. Kuehl and Roger Miller, International Talc Co., Gouverneur, N. Y.

"Magnetic Anomalies and Geophysical Prospecting in the Adirondacks," by LeRoy Scharon, Washington University.

THURSDAY, OCT. 7

Morning

"Wollastonite and Diopside, New Industrial Minerals," by Raymond Ladoo, Consultant.

"Commercial Colored Slates of New York and Vermont," by D. M. Larabee, U. S. Geological Survey.

"Geochemistry and Importance of Saratoga Mineral Waters," by Lester W. Strock, Sylvania.

"Quality Control in the Manufacture of Extender Pigments," by Charles H. Pratt, Cabot Minerals.

Afternoon

Plant Visit. Trip through quarry and plant of Cabot Minerals' new wollastonite operations, Willsboro, N. Y.

FRIDAY, OCT. 8

Morning

"Industrial Minerals of the Ottawa Valley," by N. B. Davis, Canadian Flint and Spar Co.

"Gypsum Deposits at Dutch Settlement, Nova Scotia," by C. Oliver Campbell, National Gypsum (Canada) Ltd.

SATURDAY, OCT. 9

Full day of field trips by personal cars. Leave for home directly from plant visits.

Alpha Cement to Install One-Mile Long Belt Conveyor

Alpha Portland Cement Company, Easton, Pa., has awarded a contract for the construction of a conveyor belt system approximately a mile long at its Catskill, N. Y., plant. It will carry limestone at the rate of 300 t.p.h. from the screening station to the storage area where the limestone is crushed, crossing enroute a highway and a railroad on special overhead galleries.

The conveyor will replace an aerial tramway that has been in operation for a number of years. Hewitt-Robins, Inc., Stamford, Conn., will manufacture the belting and machinery and will design and install the conveyor system.

American Mining Congress To Feature Big Exhibit At San Francisco Meeting

Billed as the world's greatest mining event, the 1954 Mining Show of the American Mining Congress scheduled at San Francisco's Civic Auditorium September 20-24, will display the latest developments in the industry, according to Ralph K. Gottshall, chairman of the manufacturers' division.

Leading manufacturers from all parts of the nation have contracted exhibit space which will occupy the full area of street and sidewalks in front of the Civic Auditorium where all sessions of the Congress will be held.

Theme of this year's Congress will be mining's vital role in our economy, its basic importance to national security, and the industry's requirements if it is to remain strong and vigorous.

Top-level government officials, members of both houses of Congress and notable industry figures will participate in special panels and round-table conferences on the problems of the mining and milling industry.

In addition to business sessions, a comprehensive program of entertainment including a dinner dance at the Palace Hotel, a chuck wagon dinner in the Palace of Fine Arts, and a night at the San Francisco Opera, are planned for the visiting miners.

Lochow Succeeds Barrett, At Seattle Office of P.C.A.

Robert H. Lochow has been appointed district engineer of the Seattle (Wash.) office of the Portland Cement Association, effective August 1, according to an announcement by Carl D. Franks, Association president. Mr. Lochow succeeds Frank J. Barrett, who is retiring after 25 years as district manager of the association's Seattle office.

Mr. Lochow joined the staff of the Portland Cement Association in April, 1949, as field engineer for the Seattle office. He was promoted to the post of statewide paving engineer in 1952. His professional experience includes 14 years as a civil and structural engineer for the City of Seattle Engineering Department, the Austin Company (Seattle), and as a partner in an engineering consulting practice.

Mr. Lochow is a professional engineer in the state of Washington, a member of the National Society of Professional Engineers, the Society of American Military Engineers, the Structural Engineers Association of Washington, and the Engineers Club, Seattle. He is also a member of Tau Beta Pi Engineering Society. As district engineer of the Seattle office, he will direct Association activities in western Washington.

Robert H. Lochow

Sentinels of Safety Awards Won by Michigan Operations

The Annandale (Mich.) limestone mine of the Michigan Limestone Division, United States Steel Corp., Boyers, Pa., and the Alpena limestone Quarry of the Wyandotte Chemicals Co., Alpena, Mich., were awarded the U. S. Bureau of Mines "Sentinels of Safety" trophies recently for the best safety records in the nonmetallic mines and quarries groups, respectively. These bronze trophies and the traditional green and white "Sentinels of Safety" flags are the awards of the annual National Safety Competition of the Bureau to the six best mines and quarries of the 583 competing in 1953, according to Douglas McKay, Secretary of the Interior, who announced the winners. Operations located in 41 states were enrolled.

The Annandale mine had worked 896,629 man-hours and the Alpena quarry 459,668 man-hours, without a lost-time injury. The injury-frequency rate of all competing operations last year was 22.22 days lost per 1,000,000 man-hours, indicating the relative superiority of the two winners in the nonmetals group.

Any mine or quarry in the country is eligible to enter this safety competition. Contest rules and application forms may be obtained by writing to the Accident Analysis Branch, Health and Safety Division, Bureau of Mines, U.S. Department of the Interior, Washington 25, D.C.

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Cement-Quarry Section To Consider Noise Problem At Natl. Safety Congress

A symposium on the legal, engineering and practical aspects of noise in industry will be one of the highlights of the cement and quarry sessions of the National Safety Congress and Exposition to be held in Chicago, Oct. 18-22.

Scheduled for the Wednesday afternoon session, Oct. 20, the symposium will begin with a talk on the legal aspects of industrial noise and occupational deafness by Noel S. Symons, attorney, of Brown, Kelly, Turner & Symons, Buffalo. The engineering aspects of noise will be covered by J. R. Cox Jr., acoustical engineer, Liberty Mutual Insurance Co., Boston. A. B. Hoftiezer, safety supervisor, Laverack & Haines, Buffalo, will tell of the practical aspects of noise control in quarries and rock processing plants. M. C. M. Pollard, director of safety, National Gypsum Co., Buffalo, N. Y., and general chairman of the National Safety Council's Cement and Quarry Section, will preside.

A motion picture, "Safe Blasting Practices in Open Pit Mines," will be presented at the Thursday afternoon session, Oct. 21, by G. A. Borgeson, claims manager, M. A. Hanna Co., Hibbing, Minn. Howard Riefenstahl, safety director, Alpha Portland Cement Co., Easton, Pa., will speak on proven aids to better safety.

A joint luncheon with the National Safety Council's Mining and Coal Mining Sections on Oct. 19 will be addressed by Ned H. Dearborn, president of the Council.

Sessions of general interest to all those attending the Congress will be presented by the American Society of Safety Engineers. Some of the topics to be covered in these morning meetings will be the safe handling of materials, industrial noise, accident costs, nuclear developments, civil defense, industrial solvents, better visibility and effective communications for improved safety.

The 1954 exposition with its 238 display booths will be the largest and most comprehensive exhibit of accident prevention equipment to be seen anywhere. All exhibit space in the Conrad Hilton Hotel will be filled with products, equipment and services relating to the promotion of safety, health, first aid, sanitation and general welfare.

National Gypsum Starts Work On Indiana Mining Project

National Gypsum Company, Buffalo, N. Y., recently announced that ground breaking has started on the construction of its new plant and mine shaft located on a 2700-acre deposit 2½ mi. east of Shoals, Ind. Melvin A. Baker, chairman, in making the announcement, stated that production will start early in 1955.

The development is the first gypsum discovery in Indiana. Upon completion of the work it will be the nation's deepest gypsum operation, with a slope shaft 2,068 ft. long, to reach a depth of over 500 ft. where the deposit occurs. The shaft, 22 ft. wide and 12 ft. high, will have a grade of 25 percent. A large crusher will be installed at the bottom, and a large capacity conveyor belt, running on one side, will take the material to the surface; the remaining space in the shaft will be used to move equipment into the mine. It is estimated that the cost of mine shaft and plant will be $4,500,000, and that from 300 to 450 men will be employed when production gets under way.

Two other producers—U.S. Gypsum Co. and Ruberoid Co.—making preliminary investigations in the general Martin County area, are reportedly ready to announce similar commitments.

Lincoln Saves You Money

New "Abrasoweld" and "Faceweld" cost less per pound, yet provide the necessary high alloy content for top resistance to impact and abrasion.

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Why Stock So Many Different Hardsurfacing Rods?

MOST hardsurfacing jobs can now be handled with just two electrodes... new "Abrasoweld" and "Faceweld." New Lincoln "Abrasoweld", a high carbon-chromium alloy, is used for severe impact and abrasion. "Faceweld", which has chromium carbide, provides higher resistance to wear from severe abrasion and moderate impact.

Cuts Costs. New Lincoln "Abrasoweld" and "Faceweld" give you more wear per dollar. Wear resistance is higher... cost per pound is less than other hardsurfacing electrodes.

Properties and procedures of Lincoln hardsurfacing electrodes are in Bulletin 469A, available by writing to Lincoln.

APPLICATIONS FOR "ABRASOWELD" AND "FACEWELD" HARDSURFACING

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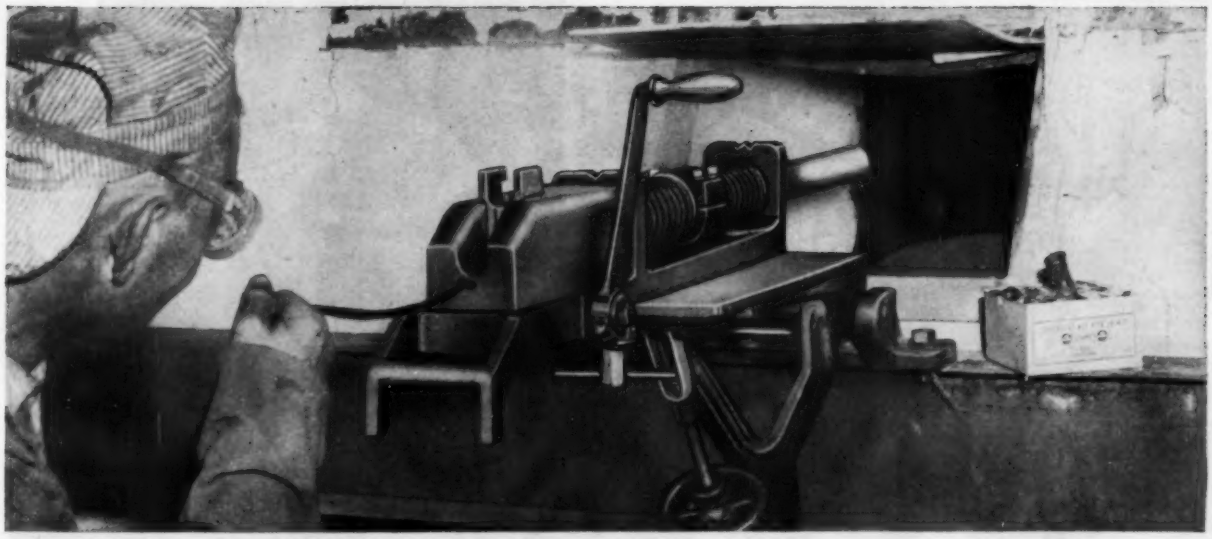

Time cut 112 to 1 in removing kiln rings with the REMINGTON INDUSTRIAL GUN

VARIOUS MOUNTINGS ARE POSSIBLE with the Industrial Gun. Here's one of the most common: secure a 6" or 8" "I" beam across the face of the kiln and simply hook the mount into the bolster. The gun can also be mounted on a truck, a tripod, or a mobile chassis for shooting down obstructions in mines or quarries.

26 hours per month production time gained by refractory plant

"We save 222 man-hours per month—and gain 26 hours' production time!" That's how the superintendent of a large refractory plant in Georgia sums up the reasons he's sold on the Remington Industrial Gun. Formerly, removal of kiln rings took 8 men an average of 28 hours per month. Two men now do the same job *in one hour*.

Hundreds of plants have found the industrial gun to be the fastest, most efficient method for ring removal. In seconds, one man can aim, load and fire the gun. A few shots loosen the ring . . . cause it to crumble when the kiln is rotated. There's never any need to cool and reheat the kiln. *Downtime is cut to a minimum!*

Use of the Remington Industrial Gun can mean big savings in labor, big gains in production for you. Our technicians will be glad to work with you on ring-removal problems at your plant. Just send the coupon for a free illustrated folder with complete information.

REMINGTON INDUSTRIAL SHELLS have tremendous smashing power. They're loaded with a powerful 3-ounce lead projectile that develops 7,475 foot-pounds' muzzle energy.

CUTTING A "KEY-WAY." A few well-placed shots loosen a section of clinker. The ring is weakened by this loss of the arch key . . . will usually fall without additional shots when the kiln is rotated.

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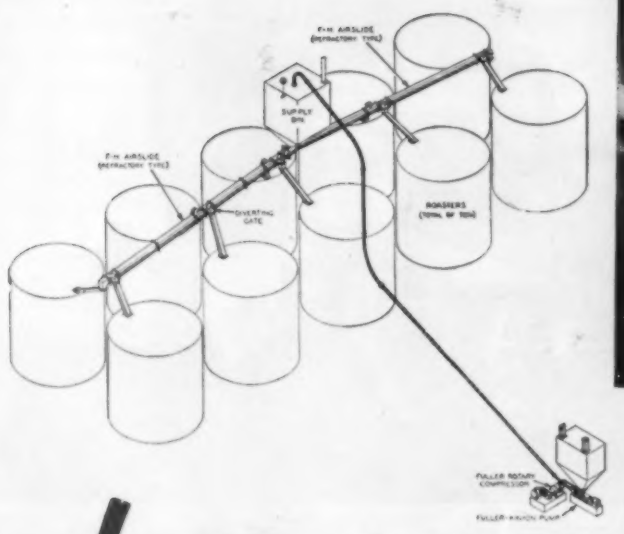
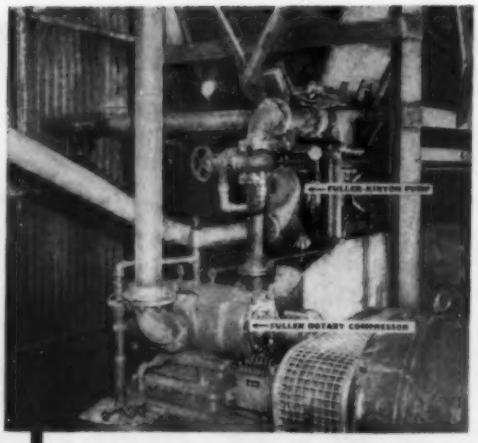
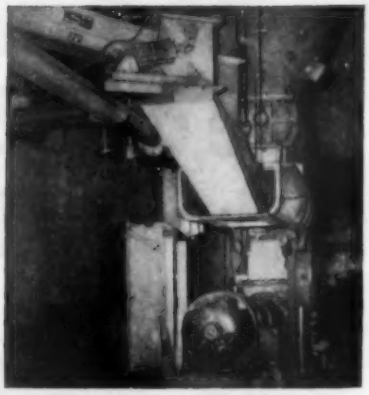
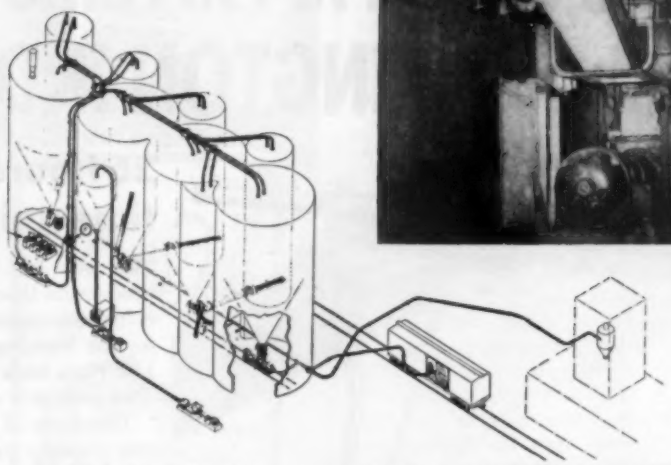






Hot or COLD



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Illustrated are two installations, each made practical and economical by the combination of these two systems . . . advanced designing and know-how by Fuller engineers experienced in the art of air-conveying for over a quarter of a century.

Installation, upper left, conveying hot flue dust. A Fuller-Kinyon Pump conveys from a precipitator to a supply bin. From the supply bin, F-H Airslides convey and control the distribution of the flue dust to roasters, with no dust or loss of material. Material handled has a temperature up to 800 deg. fahr. The pump conveys at rate of 25 tons an hour over a distance of approximately 220 feet.

Drawing, lower right, talc conveying. Fuller-Kinyon Systems convey from pulverizers to storage silos and bins, and from storage to packer bin or bulk-car loading. F-H Airslides convey from flat-bottom storage bins to the Fuller-Kinyon Portable Pump illustrated above drawing.

When it's conveying you need, you need a Fuller engineer to make a study of your requirements. His findings may result in advanced and practical ideas you never anticipated or thought possible. Write for literature on Fuller-Kinyon and Airslide Conveyors.

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TYPICAL INSTALLATIONS OF McLANAHAN LOG WASHERS

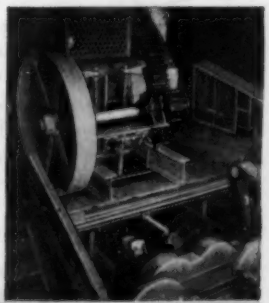
Three pairs of McLanahan Logs in the world's largest phosphate plant in Florida.

New and old type McLanahan Log Washers used here remove clay from cement rock in Pennsylvania.

McLanahan Log Washers removing tough clays from gold ores in Alaska.

McLanahan Paddle Mill and Log Washer cleaning Texas limestone.

Two pairs of 30' McLanahan Logs, used for cleaning sand and gravel in Virginia.



McLanahan Rockmaster Crusher and Log Washer removing tough clays from iron ore in Alabama.

McLanahan Welded Steel Log Washers are smooth running, highly efficient machines for removing tough clays, soft rock and other materials from iron and manganese ores, barytes, zinc, ochre, peat, limestone, trap rock, sand and gravel, phosphate, gold and other ores. These machines remove up to 90% of refuse materials—providing savings that more than pay for the installation in a short time. A few of hundreds of applications are illustrated at right.

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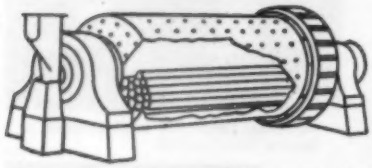

You'll find that CF&I Grinding Rods give maximum life with a minimum of end tapering. Each rod is carefully rolled, then machine straightened. Every end is square-cut. And each rod is carefully inspected throughout production to assure perfection.

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Moore Named President Of Longview Lime Corp. As Warren Lewis Retires

Malone Moore has been named the new president of the Longview Lime Corporation, Birmingham, Ala., succeeding Warren Lewis, who was associated with the firm for 21 years. Although Mr. Lewis has retired from his former post, he will continue as a stockholder and a director, and will serve as assistant to the chairman. He has been engaged in the lime and cement business for 43 years.

Mr. Moore, who has been vice-president and treasurer of the corporation, has been affiliated with Longview for the last 14 years.

Robert Weatherly, previously an executive in the Sales Division of the Monsanto Chemical Company, will engage in sales organization and promotional work for Longview.

Robert D. Rae, a member of the firm's sales force for the last 15 years, will be active in the overall sales program, with headquarters in the home office.

Industrial Hygiene Foundation Publishes 1953 Proceedings

Transactions Bulletin No. 27 of the 18th annual meeting conferences (1953) of the Industrial Hygiene Foundation of America, recently published by that organization, covers transactions of the technical sessions held in Pittsburgh last November.

The 183-page bulletin is illustrated with photographs, sketches, graphs, and charts and is divided into the following sections: medical, legal, medical-legal, engineering, and chemical-toxicological. It is available at $3 per copy from the Industrial Hygiene Foundation of America, 4400 Fifth Avenue, Pittsburgh, Pa.

Dewey Portland Cement Trust Aids Hospitals near Plants

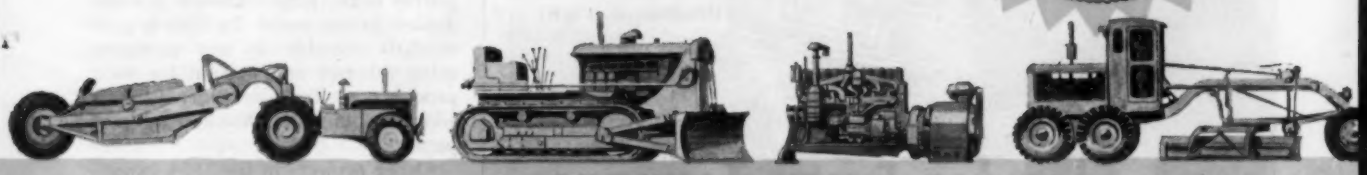
According to a recent announcement by Leo J. Capan, member of the executive committee of Dewey Portland Cement Company, Kansas City, Mo., a $50,000 trust fund has been set up in the name of Frank Edmund Tyler, chairman of the executive committee and founder of the firm, to benefit St. Lukes Hospital, Davenport, Iowa, and the Washington County Memorial Hospital at Bartlesville, Okla.

The purpose of the trust fund, it was explained, is to assist hospitals in areas where company plants exist, so that employees may benefit from them.

USED EQUIPMENT THAT MEETS YOUR NEEDS —COST-WISE AND WORK-WISE!

Only from your CATERPILLAR DEALER —a $10,000 guarantee on "Bonded Buy" used Caterpillar-built mining equipment. Other big values in used units of any make!

BONDED BUY



Check your equipment line-up against your job set-up—can you strengthen it anywhere with a used unit? For the best buys, see your Caterpillar Dealer! He offers you big values across the board in used tractors, engines, motor graders, scrapers and wagons for stripping, cleaning face, feeding the shovel, hauling coal or overburden, exploration, building and maintaining roads and other mining jobs!

Cost-wise and work-wise, you'll find what you want in his lot. For big-production value, there's "Bonded Buy"—used Caterpillar-built equipment with a guarantee backed by a bond of $10,000, issued by The Travelers Indemnity Company. You get this guarantee with your purchase of a "Bonded Buy" unit. For other big values, there are "Certified Buy" and "Buy and Try" classifications. These cover used units of any make, honestly labeled and backed in writing.

No buying blindfolded—you know what you're getting from your Caterpillar Dealer. Your best source of new equipment, he's also your best source of used equipment. See him today for your best buy!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

REG. U. S. PAT. OFF.

BEST BUYS IN NEW AND USED EQUIPMENT

DIESEL ENGINES • TRACTORS
MOTOR GRADERS • EARTHMOVING EQUIPMENT

YOU KNOW WHAT YOU'RE BUYING FROM YOUR CATERPILLAR DEALER

Your Caterpillar Dealer offers three classes of used equipment, and backs each one in writing. You buy with confidence, sure that the equipment is honestly described.

(1) **"BONDED BUY."** Only the best in used Caterpillar Diesel Tractors, Engines, Motor Graders and Earthmoving Equipment. Each "BONDED BUY" machine is backed by a Dealer's Guarantee Bond equal to the purchase price of the unit up to a maximum of $10,000. This provides a guarantee for thirty days against unsatisfactory performance due to defective parts. If a part should prove defective within the guarantee period under the normal conditions of your job and with proper maintenance, your dealer will put your unit back into operating condition *with no charge to you for parts and labor* up to the amount of the bond. The Dealer's Guarantee Bond is backed by The Travelers Indemnity Company. Your Caterpillar Dealer gives you this protection with your purchase of a "BONDED BUY" unit. Look for the "BONDED BUY" symbol—it's your assurance of the best in used machines.

(2) **"CERTIFIED BUY."** "Certified Buy" covers units of any make in good condition. Your performance guarantee is in writing backed by your Caterpillar Dealer.

(3) **"BUY AND TRY."** Bargains in used machines of any make. Buy and try them for a period mutually agreed upon by you and your dealer. Each "Buy and Try" unit carries his written "money-back" agreement.

"BONDED BUY" assurance effective in the United States and Canada

Copyright 1954, Caterpillar Tractor Co.

CATERPILLAR TRACTOR CO., Peoria, Illinois, U. S. A.
GENTLEMEN: Send me, without obligation, more information on "Bonded Buy."

*Name*_____

*Street Address*_____

*City*_____ *Zone No.*_____ *State*_____

American HAMMERMILLS
OFFER...
"ACS Series"
Made in 4 sizes and two types. Capacity to 250 T. P. H.
Front Feed — For minimum of fines.
Center Feed — For maximum of fines. (Illustrated at left)
...A Size for Every Tonnage
"30 Series"
Made in 4 sizes. Capacity up to 100 T.P.H.
...from Roadstone to Agstone
"24 Series"
Made in 4 sizes. Capacity up to 50 T. P. H.
Write for Bulletin—"Better Stone Crushing"
American PULVERIZER COMPANY
Originators and Manufacturers of Ring Crushers and Pulverizers
1059 MACKLIND
ST. LOUIS 10, MO.

Johns-Manville Reveals New Expansion Project—Munro Mine Development

As the third large project to be announced in Johns-Manville Corporation's $18,000,000 expansion and improvement program for 1954, the plans to develop the underground mining facilities at their Munro mine, east of Matheson, Ont., Canada, rank high in importance. Announcement of the details of this development was made recently by A. R. Fisher, president, who said that sinking of the first shaft would start this year and that the new underground facilities would be in operation in four years.

This mine produces important grades of fiber not found at Asbestos, Quebec, where J.-M. operates the Jeffrey mine, largest known asbestos deposit in the world. Its fiber is particularly suitable in wet processes using asbestos and cement for such products as Transite pipe, asbestos roofing, siding shingles, and asbestos paper.

Other projects in the 1954 expansion of J.-M. facilities include an addition to the plant at Waukegan, Ill., and a new synthetic silicates plant at the diatomite mine at Lompoc, Calif.

New Sand, Gravel, Ready-Mix Plants in North Carolina

The Becker County Sand and Gravel Company, which now operates 27 plants throughout the country, six of them at scattered locations in the Southeast, will open a new plant at Senter, N. C. This firm recently acquired several thousand acres of land in this area.

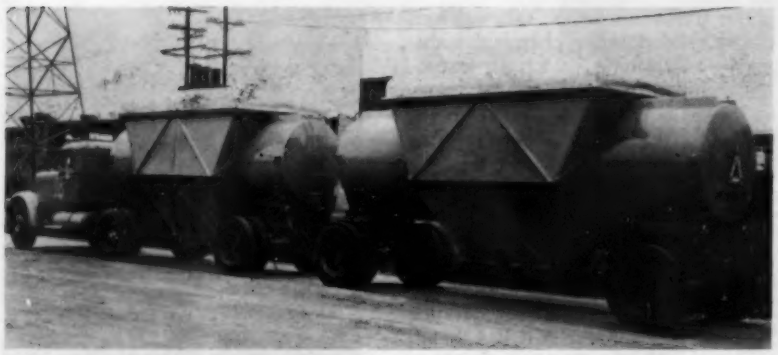
T. A. Loving and Company, general contractors, will establish a ready-mixed concrete plant at Fayetteville, N. C.

The J. C. Jones Sand Company has shifted its major operations from its present source of supply at Fort Story to the Oceana section of Princess Anne County, N. C., for more favorable reserves and better rail transportation.

These are some of the recent industrial expansions along the lines of the Norfolk Southern Railway.

The new establishments reportedly will involve an aggregate cost in excess of $1,000,000.

Norway's cement production rose from 721,000 tons in 1952 to 760,000 tons in 1953.



● This dual-purpose hauling unit saves $100 per day for the Riverside Cement Company.

Bulk-Cement Vehicle Hauls Fuel Oil on Return Trip

Savings estimated to run as high as $100 daily are accruing to the Riverside Cement Company, Los Angeles, through the use of a new type of dual-purpose trailer which it recently put into service. This unique vehicle was designed to haul a payload in each direction on the 200-mile round trip between the cement plant at Oro Grande, Calif., and the company's bulk-distribution and storage facilities in Los Angeles.

Cement is carried in the bottom-dump hoppers which ride saddle-like astride the cylindrical steel tanks. The latter are used on the return trip to transport fuel oil for firing the rotary kilns at Oro Grande. The vehicle is in 'round-the-clock service.

A cargo of 122 bbl. of cement is carried in the aluminum covered-hopper tanks above the two 5-ft. diameter oil tanks, which have a combined capacity of 5,700 gal.

Satisfaction with the initial unit has prompted the company to order a half-dozen additional trailers. The vehicle was designed and engineered by the Utility Trailer Manufacturing Company of Los Angeles in co-operation with Thomas F. Tugwell, Riverside's transportation director.

Clay Storage Tank Collapses At Eastern Cement Plant

The bursting of a reinforced concrete tank, holding some 600 tons of clay slip, at the Buffalo mill of Federal Portland Cement Co., on June 23, interfered with production at this mill until repairs to several damaged buildings were completed. Measuring 21 ft. in dia. and 45 ft. high, the tank was of a type commonly used in wet process cement plants.

The tank had been put into service in June, and was only actively used during the week of failure. At the time of the accident it had been filled to within five feet of the top.

No one actually witnessed the bursting so the point of the initial break in the tank was not determined. The contents of near-liquid clay rushing out acted like a tidal wave, engulfing several nearby buildings, and washing out the walls of the power house, containing a 60-cycle transformer and switch gear control equipment, which stopped all production.

Four men were seriously injured in the accident, and one, Frank Nerthling, master mechanic, died of his injuries a week later. A thorough investigation as to the cause of the failure was immediately undertaken.

American Conveyor Sections To Serve India Dam Project

Hewitt-Robins, Inc., Stamford, Conn., will soon ship to India from its Passaic, N. J., plant, a series of 46 belt conveyors of various lengths for service in the construction of the 680-ft. high concrete Bhakra Dam. The sections will be linked together in a 5-mile continuous line over rugged terrain in the Himalaya foothills to carry aggregates from the pit source to the construction site.

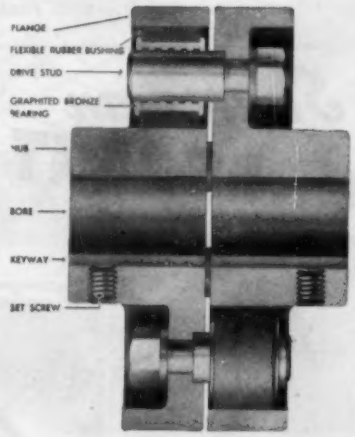
This structure, to be built by the Indian government, will be the second-highest dam in the world—the Hoover Dam on the Colorado River being 724 ft. high. It will back up water sufficient to irrigate 10,000,000 acres of land and generate 900,000 kilowatts of power.

The J. R. Simplot Company, Boise, Idaho, was the sole bidder for leasing 1,346 acres of land near Kilgore, Idaho, for phosphate production, with a bid of $1.00 per acre, according to the U.S. Bureau of Land Management, Washington, D. C.

The Utah Sand and Gravel Company, Salt Lake City, Utah, has under construction a $15,000, three-story, steel asphalt mixing plant.

AJAX

FLEXIBLE COUPLINGS



CUT BREAKDOWN LOSSES...

● Protect against costly shutdowns of dredges, cranes, pumps, washers and conveyors with Ajax Rubber-Bronze Bushed Flexible Couplings. No lubrication . . . unaffected by air or water-borne abrasives. Standard for over thirty years. Write for catalog.

AJAX FLEXIBLE COUPLING CO. INC.
WESTFIELD, N. Y.

A.R.B.A. Exhibit Scheduled For New Orleans Meeting To Feature Materials

It was announced recently by spokesmen of the American Road Builders' Association that an exhibit of highway materials and supplies will be held in conjunction with the next annual meeting of A.R.B.A., scheduled for January 10 to 13, 1955, at the Roosevelt Hotel in New Orleans. It was indicated that the exhibit will include displays of the following: aggregates; bituminous materials; portland cement; additives for bituminous materials and concrete; traffic markings; salt, calcium chloride, and other chemical stabilizers; reinforcing materials; explosives; and many other related items.

Those in charge of arrangements expect a large attendance drawn from federal, state, county, municipal, and local highway officials, and engineers, as well as delegates from abroad, publishers, educators, students, equipment manufacturers and distributors, and technical and other service organizations. For detailed information, apply to A.R.B.A. headquarters, World Center Building, Washington, D.C.

● Certain-teed Products Corporation uses a Joy diesel-electric shuttle car to feed gypsum ore to a portable rock crusher in the firm's mine near Grand Rapids, Mich. The floor of the car is a conveyor driven by a separate electric motor. The three motors used receive a full-volume supply of power from the G.M. 71 diesel-driven Reliance generator, an arrangement which eliminates the usual power lag common to battery-operated units. The result is a faster hauling operation and negotiation of 12 percent grades for the full day work period.

Sauerman
CRESCENT SCRAPERS

dig, haul and place more yardage *faster—at lower cost!*

Reduce difficult dig-haul-piling jobs to a simple, single operation with a Sauerman Crescent Scraper. Sizes range from 1/3 to 15 cu. yds. to cover the needs of material handling jobs . . . large or small.

The Crescent, with rugged toothed-blade, penetrates the hardest material with plowshare ease. The unique bottomless scraper gathers a full load on the forward pull and hauls at ground level to the discharge point for an instantaneous, clean dump. A single operator situated in a safe, comfortable cab overlooking the work area, automatically controls all the digging, hauling and dumping operations.

Sauerman Scrapers are reasonable in first cost, simple and economical to maintain. Engineered to combine sturdy construction and wear-resistant lightweight metals, the Sauerman Crescent Scraper gives you small power consumption—diesel, gasoline or electric—compared to tonnages handled. Scrapers installed more than twenty-five years ago are still giving dependable service.

Write today for Catalog J for full information about the Crescent Scraper. Sauerman Bros., Inc., 534 S. Clinton Street, Chicago 7, Illinois.

ONE-MAN MATERIALS HANDLING

SAUERMAN BROS., INC.

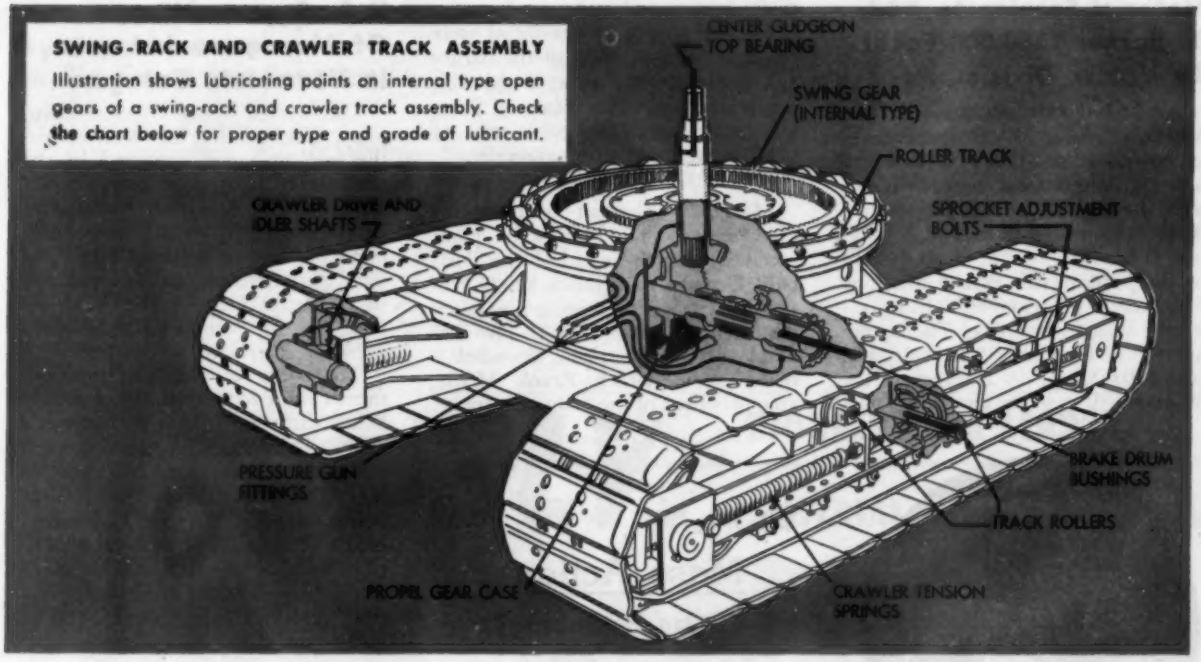
Ruberoid Enters Gypsum Field—Acquires Ebsary Gypsum Co.

In an important step towards greater product diversification, The Ruberoid Co., New York, has acquired the assets, goodwill and going business of Ebsary Gypsum Company of Rochester, New York. The move will introduce Ruberoid, a leading building materials manufacturer, into the gypsum field.

Ebsary Gypsum was founded in 1909 by Frederick G. Ebsary, who was president at the time of the transaction. The company is widely known in areas east of the Mississippi as a producer of gypsum wallboard, lath, plaster, blocks and gypsum rock. It operates a board and plaster plant at Wheatland, N. Y., about 18 miles southwest of Rochester. Included in the acquisition were gypsum properties contiguous with the plant. These contain enough ore reserves to make the Wheatland plant self-sufficient for many years.

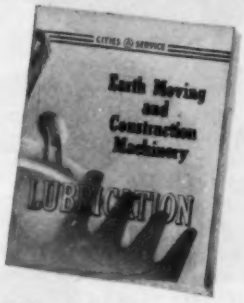
The Ruberoid Co. was established in 1886 in South Bound Brook, N. J. This concern operates 16 plants throughout the United States and an asbestos mine in Vermont, the only important mine of its kind in the country. The newly acquired plant will be operated as a Ruberoid division and will continue to serve existing Ebsary customers.

Calaveras Cement Company has won *Financial World's* merit award for distinguished achievement in annual corporation reporting.


SWING-RACK AND CRAWLER TRACK ASSEMBLY
Illustration shows lubricating points on internal type open gears of a swing-rack and crawler track assembly. Check the chart below for proper type and grade of lubricant.
CENTER GUDGEON TOP BEARING
SWING GEAR (INTERNAL TYPE)
ROLLER TRACK
SPROCKET ADJUSTMENT BOLTS
CRAWLER DRIVE AND IDLER SHAFTS
PRESSURE GUN FITTINGS
BRAKE DRUM BUSHINGS
TRACK ROLLERS
PROPEL GEAR CASE
CRAWLER TENSION SPRINGS

Where, how and with what to lubricate?

Lubricating procedures and suggested materials discussed on this page represent just one of the many invaluable sections contained in the newest Cities Service EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK. For your FREE copy, write Cities Service Oil Company, Sixty Wall Tower, New York City 5.



FREE: Write today for the EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

LUBRICATION OF SWING-RACK AND CRAWLER MECHANISM

Part or Unit	How Lubricated	Lubricant Recommended	Grade No. 0°F. to 32°F.	Grade No. Above 32°F.
CRAWLER MECHANISM— Track rollers, idlers, track wheels, etc.				
Oliver:	Track Wheel System	Trojan Gear Oil	#90	#140
Allis-Chalmers:	Positive Seal Units	Trojan Grease	P-0	P-0
Others—				
Grease Lubricated:	Pressure gun fittings	Trojan Grease	A-0	A-1
	Pressure gun fittings	Trojan Grease	F-3-0	F-2-0
Oil Lubricated:	Hand gun or other means	Trojan Gear Oil	#90	#90 to #250
GEAR DRIVES—				
Open: Normal Condition	By brush or other means	Cisco Compound	#3-Z	#5-Z
Dusty Condition	By brush or bath	Raven Oil	#3	#7
Enclosed:	Bath	Trojan Gear Oil	#90	#140

Material Service to Add 30 Barges ($50,000 Each) To Marine Division Fleet

A $1,500,000 addition to the Marine Division of Material Service Corporation—in the form of 30 new 1,500-ton steel barges—represents the faith of the firm's executives in the practicability of water hauling. The 13th of the barges, built by the Jeffersonville Boat & Machine Company, Jeffersonville, Ind., recently went into service. The barges are 195 ft. long and 35 ft. wide, and cost $50,000 apiece. Delivery of the 30 units will raise the company's fleet to 90 barges and seven towboats.

Hooked to one of the diesel towboats, a string of eight of the barges can negotiate the locks of the Illinois waterway system. Material Service craft carry 3,000,000 tons of sand, gravel, and stone annually.

Marquette Cement Manufacturing Company's Des Moines, Ia., plant received its fifth award of the Portland Cement Association safety trophy for 1954, representing a no-accident record during 1953. The 225 employees of the plant attended a breakfast at which Frank Moyle, vice-president of the company, spoke.

What is

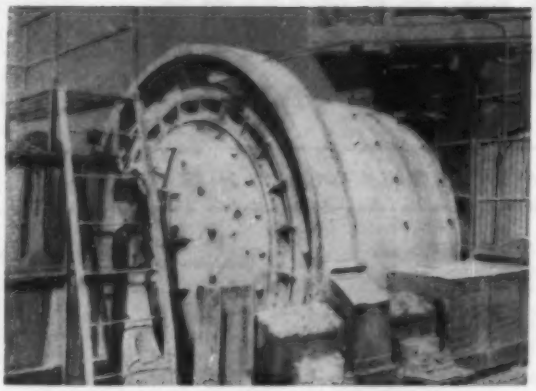
Mass Action

in Ore Scrubbing?

"Mass Action" in a HARDINGE CONICAL SCRUBBER is similar to the effect obtained by rubbing a handful of pebbles between the palms in a stream of water.

This scrubber is capable of removing a very hard clay from ores, phosphate rock, gravel, etc., in a very short time with only nominal wear in the machine itself.

Write for Bulletin 37-A-8 and give us pertinent details of your scrubbing problem.



View of a 10' x 66" Hardinge Scrubber cleaning crushed dolomite in a California plant. The trommel screen is at the left.

HARDINGE

COMPANY, INCORPORATED

YORK, PENNSYLVANIA • 240 Arch St. • Main Office and Works

New York • Toronto • Chicago • Hibbing • Houston • Salt Lake City • San Francisco

U. S. Gypsum Winner Of Management Award In Nonmetals Category

The United States Gypsum Company, Chicago, Ill., has been named the best managed company in the stone, clay and glass products industry by the American Institute of Management, in its first announcement of the management leaders in their respective industries, contained in the latest issue of the AIM report, *The Investment Value of Management Excellence.*

The study of excellent management's value for investment purposes, being distributed to the Institute's 13,000 members, is presented according to the ten appraisal categories of the AIM Management Audit: economic function, corporate structure, health of earnings growth, fairness to stock-holders, research and development, directorate analysis, fiscal policies, production efficiency, sales vigor, and executive evaluation.

Western Potash Freezes Ground To Sink 3,500-Ft. Deep Shaft

Western Potash Corp., Ltd., Toronto, while sinking a 12½-ft. diameter shaft to reach a 3,500-ft. deep deposit of potash at Unity, Saskatchewan, Canada, encountered an artesian well sand zone at the 235-ft. level. To enable the drilling to proceed, it was necessary to freeze this zone. From a drilling chamber excavated at the 160-ft. level, 36 holes were drilled 305 ft. down, surrounding the shaft area. A refrigeration unit was installed in the chamber and brine was pumped from it through plastic pipes in the 36 supplementary shafts until the ground was frozen solid; then drilling proceeded and the shaft was lined with concrete.

Drilling is progressing through firmer rock at the rate of about 300 ft. a month, to reach the 1,000 ft. level by the end of September. At this point an electric hoist will be installed to facilitate digging down to the 3,500-ft. level, where mining the potash will follow lines similar to that of mining coal. Potash deposits in Saskatchewan are stated to be the third largest in the world, and to extend under most of the southern part of the province.

Cost of the Unity shaft has already exceeded $1,000,000. The company has contracted for the mineral rights under 120,000 acres, estimating that the content is 2½ billion tons of potash. It has also acquired exploration rights in a large area near Saskatoon.

Fuller Company Acquired By General American In Big Expansion Program

Officials of the General American Transportation Corporation, Chicago, have announced that the firm will purchase the Fuller Company of Catasauqua, Pa., designers and manufacturers of pneumatic conveying system for dry bulk materials handling. The acquisition will be made through an exchange of General American common stock having a market value in excess of $9,000,000 for all of the outstanding stock of the Fuller Company. (All Fuller stock is held by J. W. Fuller, president, and C. Thomas Fuller, vice-president.)

Annual sales of the Fuller Company are said to total about $12,000,000. In addition to pneumatic equipment, Fuller makes cooling and heat recuperation equipment, industrial compressors and vacuum pumps, gray iron and alloy castings, and close tolerance machine work. The Hershey Machine and Foundry Company, Manheim, Pa., and the Separation Process Company, Catasauqua, are Fuller subsidiaries.

The Fuller Company will continue to be operated as a separate organization under its present management, with the exception of the Fuller brothers, who will withdraw. A. E. Douglass Sr., chairman of the Fuller executive committee, will become president.

Nonmetallic Firms Report On Annual Sales, Earnings

Producers of nonmetallic minerals, in their annual reports, revealed a rising trend in sales and net profits for the last year. A report to stockholders released by Robert Mitchell, president of Consolidated Rock Products Company of Los Angeles, Calif., lists sales for the year 1953 at $22,505,671, compared with $15,850,190 for 1952. Net profits are reported as $839,616 for 1953, and $414,850 for 1952.

Spokesmen of the American Potash & Chemical Corporation of Los Angeles stated that the company's net earning for the year 1953 was $2,106,082, or $4.01 a share, up from the 1952 figure of $1,670,555, or $3.26 a share. Sales for the year 1953 were $22,461,056, up from $18,049,179 in 1952.

Officials of Pacific Coast Aggregates, Inc., of San Francisco reported a net profit for 1953 of $550,502, or 58 cents a share on total revenue of $16,121,560. This is compared with a net profit of $547,630 or 67 cents a share on total revenue of $15,778,512 for 1952.

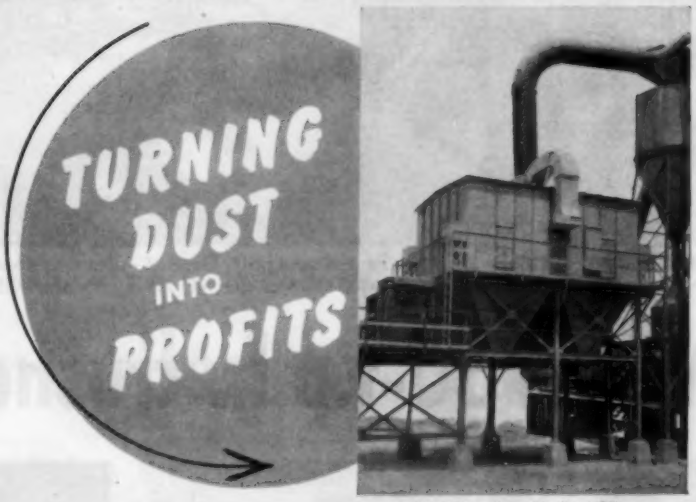
Colonial Sand & Stone Company, Inc., and subsidiaries reported a net profit of $585,438, in 1953, with net sales of $23,821,379. Respective figures for the year 1952 were $742,417, net profit, with $24,243,422 in net sales.

Net sales of $5,960,870 and net earnings of $373,883 for the fiscal year ended March 31, 1954, are reported by the Zonolite Company, Chicago, miners and processors of vermiculite.

Sales, third-highest in Zonolite history, just top those of 1953, of $5,942,248. Earnings amounting to 38 cents per share fell 19 percent from 1953 earnings of $462,779, or 47 cents per share. The decrease was attributed to higher research and selling costs.

Riverside Cement Company of San Francisco reported a 1953 net income of $2,556,489, equal to $10.65 a share, compared with the 1952 net income of $2,269,293, or $9.46 a share.

SLY PIONEERS and LEADERS in INDUSTRIAL DUST CONTROL



25,000 c.f.m. Sly Dust Filter

The plant of the Buffalo Crushed Stone Corporation produces a wide range of hot-mix and cold-mix specifications.

In an average day's run of 700 tons, the Sly Dust Filter, shown above, collects 10 tons of dust—used as a mineral filler in certain sheet asphalt specifications.

By reclaiming this fine dust, the Sly installation pays a profit and at the same time provides a cleaner plant and better working conditions.

These earnings are typical. Hundreds of Sly Dust Filters are creating profits in the production of crushed stone, cement, gypsum, limestone, feldspar, flourspar, bauxite, etc.

Expertly designed and built, Sly Dust Filters offer many advantages in greater filtering capacity, easier bag replacement, automatic control, and other features which spell low cost operation.

May we tell you more about Sly for your particular application?

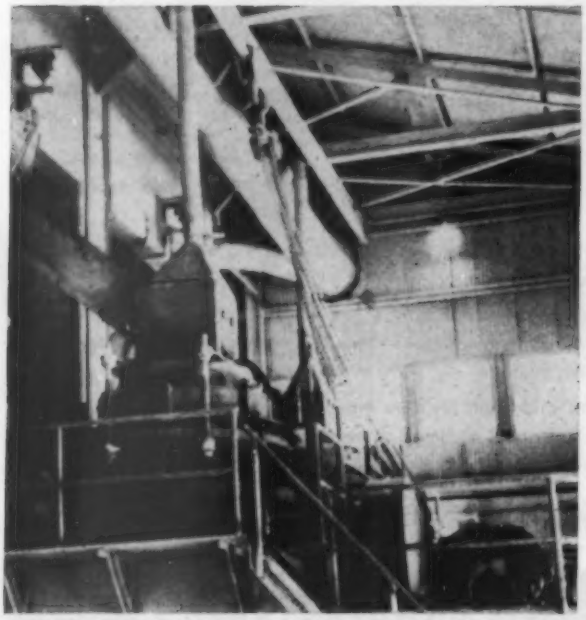
THE W. W. SLY MANUFACTURING CO.

4745 TRAIN AVENUE • CLEVELAND 2, OHIO
New York • Chicago • Philadelphia • Syracuse • Detroit • Buffalo
Cincinnati • St. Louis • Minneapolis • Birmingham • Los Angeles • Toronto

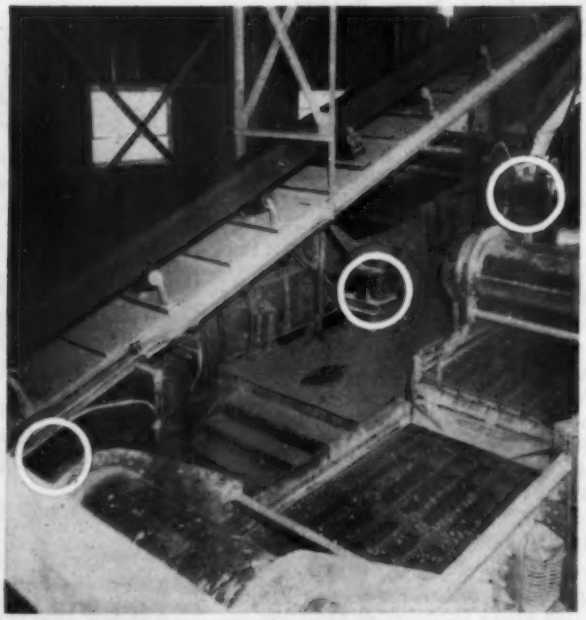
ENGINEERING REPORTS:

ENTIRE PLANT of Dolese Bros. Co. is operated with General Electric motors and control, co-ordinated to meet diverse, yet exacting specifications. Shown here are earthen ramp and the crushing building (right) and stockpiling facilities (left).

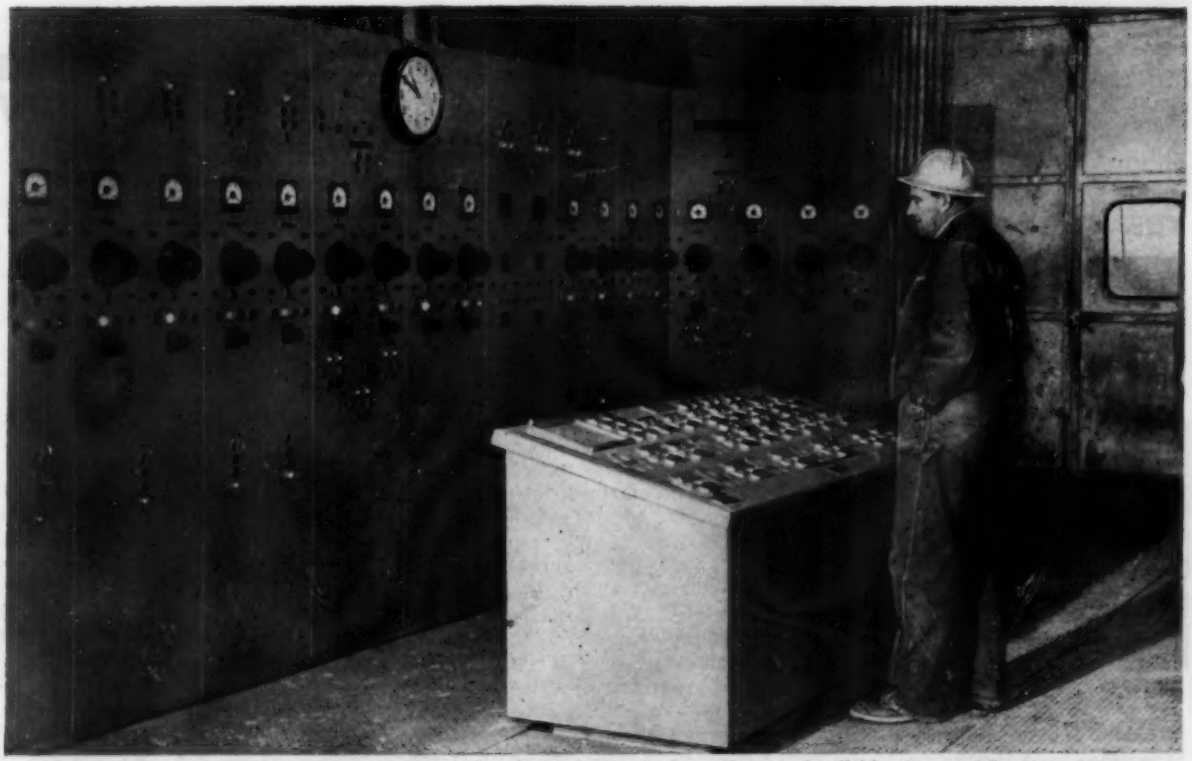
New 750-t.p.h. crushed-stone plant



1 STONE COMES TO THIS CRUSHER on conveyor powered by G-E 100-hp a-c motor (not shown). Solenoid trip (top left) controls feed automatically. Crushed stone is then removed by conveyor driven by G-E motor at lower right.

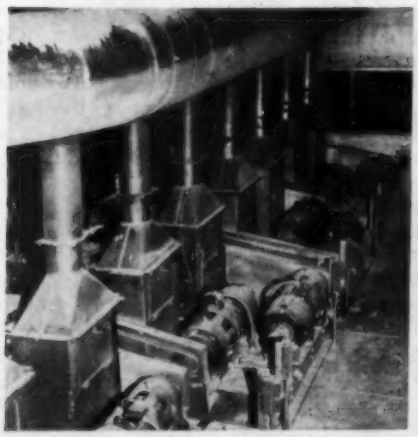


2 SCREENING IS CONTINUOUS to maintain high production rate. All screens are operated by G-E Tri-Clad* totally enclosed motors (circled), which keep production going under all operating conditions. *Reg. trade-mark of General Electric Company



MASTER CONTROLS for whole operation are easily handled by one man. Desk-type benchboard controls screening process; vertical panel controls all blending and loading. All controls are located in air-conditioned central control room.

accurately controlled by one man



3 FEEDERS SUPPLY BLENDING process by belts driven by this battery of General Electric d-c gear-motors, powered and controlled by G-E speed-variators.

Dolese Bros. Co. plant completely electrified with G-E drives for peak output

One of the most modern crushed-stone plants in the world, Dolese Bros. Co. of Richard Spur, Okla., relies on an electrically co-ordinated plant-flow system for balanced production at top capacity of 750 t.p.h. Nerve center for this fast-moving operation is General Electric centralized control, which accurately integrates all production operations with the Hewitt-Robins materials-handling system.

Each process is pre-set, and controlled with finger-tip sensitivity from the central control room to meet any one of an almost infinite variety of stone-size combinations. Money-saving, production-boosting G-E motors and generated voltage control are used for the entire system. Result is extra flexibility and smooth flow of production through the plant.

FOR HIGHER OUTPUT, MODERNIZE ELECTRICALLY. To eliminate bottlenecks and increase production in *your* plant, G-E application engineers are ready to work with you and your equipment manufacturers. Contact your nearest G-E Apparatus Sales representative today. General Electric Company, Schenectady 5, N. Y. 658-12

Engineered Electrical Systems for the Rock Products Industry

GENERAL ELECTRIC

YUBA Bucket Ladder Dredges for dredging placer properties including rare earths, etc.; handling sand and gravel, dam construction, channel changes, etc., Bucket sizes: 2½ to 18 cu. ft. or larger. Digging depths below water as required.

YUBA Abrasion Resisting Steel Screens—Flat or revolving for separating, scrubbing, sizing. Holes taper drilled to prevent clogging. All thicknesses from ¼" up; other dimensions as needed. U·S·S· AR plate carried in stock.

Stockton "Yubabilt" Clamshell Buckets, for channel, harbor and reclamation dredging. Two types: California and Power Arm (shown here). Three weight classes: heavy, standard, special light weight. ½ to 6 cu. yds.

YUBA DREDGES — PROVED DEPENDABILITY AROUND THE WORLD

57

YUBA MANUFACTURING CO.
Room 710 • 351 California St. • San Francisco 4, Calif.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

IN THE September, 1924, issue of PIT AND QUARRY it was announced that, starting with the October 1st issue, beginning Volume 9, publication would be on a semi-monthly basis. The steady growth of the magazine, especially in advertising volume, was the reason for this step.

That issue also stressed several of the problems facing the industry and urged producers to study them. Workmen's compensation, it was stated, was one of the most important matters to both employers and employees. After a brief history of this subject, which began in this country in 1902, it was pointed out that there were currently workmen's compensation laws in 42 states and 3 territories, but that these followed no uniform pattern. Producers were urged to join in an effort being made to standardize provisions throughout the country.

Another article pointed out that workers' health and safety is of primary importance to producers, not only for humanitarian reasons but also as an important factor in efficient and economical operation. The efforts being made to increase production involved rebuilding plants, reducing labor turnover, adopting more efficient methods, etc. The time and production lost due to sickness and accident, however, had not been given the attention they deserved.

There was also a dissertation on the "Pittsburgh Plus" freight rate case in which the Federal Trade Commission was trying to enforce its cease and desist order. It was pointed out that this body would find its efforts somewhat futile unless it secured a more clearly defined authority as a basis for its decisions relative to unfair competition and business methods.

There was to be, according to another item, a broad and scientific investigation of the properties of cement and concrete, at a time when this subject was badly in need of study. This program was to cover all phases from a study of aggregates and cement ingredients through the finished product in place. It was to be undertaken by the Bureau of Standards and the Portland Cement Association, with the full endorsement of the Department of Commerce.

Special articles for PIT AND QUARRY included one entitled *Combustion and Powdered Coal* by Charles Longenecker of the Combustion Engineering Corporation. Both the central system, then predominating, and the unit pulverizing system, just coming into favor, were completely described and compared. George B Massey, associate editor, contributed another of his authoritative articles this one on *Prime Movers for Hydraulicking and Dredging Operations.* There was also the first of a series of articles on *Cost Accounting in the Crushed Stone Industry* by D. J. Hutchinson.

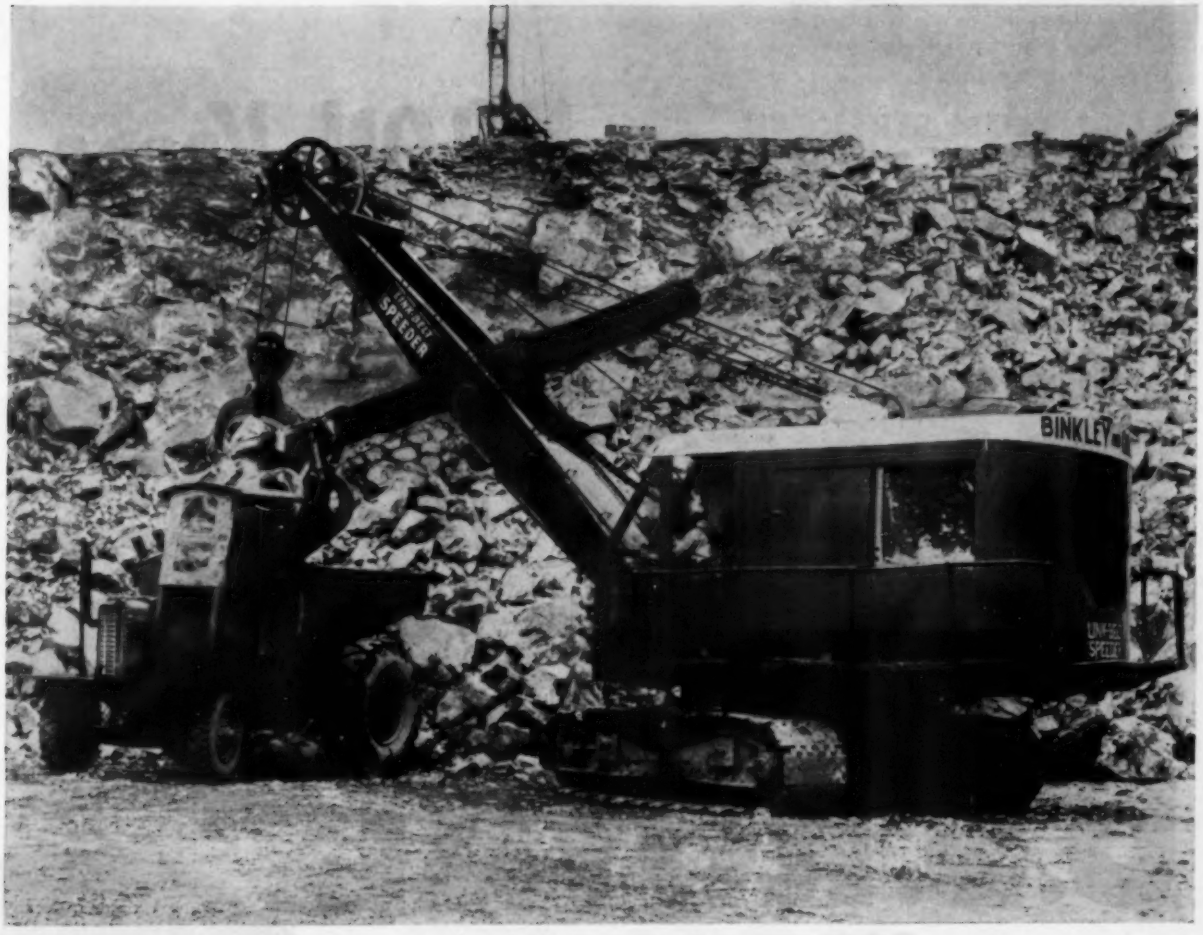
Plant operating articles were well represented. There was a complete description of the new cement plant of the State of South Dakota at Rapid City, a modern 2,000-bbl., wet-process operation. Crushed stone was represented by an analysis of the operation of the Milwaukee (Wis.) municipal crushed stone plant, and that of the Trap Rock Company at Dresser Junction, Wis.

An unusual new sand and gravel plant was that of the Petersen Sand & Gravel Company at Janesville, Wis., which had a ground storage system with tunnel conveyor recovery. A Barber-Greene loader was used in the pit at the 45-ft. face, and this fed directly to an extensible portable field conveyor.

Another operation featured was that of A. J. Clementz's Sons at Massillon, Ohio. This company operated a modern 700-cu. yd. sand and gravel plant, and an even more modern concrete block plant.

A report on output of concrete block illustrated the rapid growth of that industry. In 1920 output was 50,000,000 8- by 8- by 16-in. equivalents; in 1921 it was 175,000,000; in 1922 it was 297,000,000; and in 1923 output was 385,000,000 units.

In the news was the rebuilding of the plant of Midwest Crushed Stone Quarries, Greencastle, Ind., which had been destroyed by fire earlier in the year. The new plant was fireproof. The Charles Warner Company, Wilmington, Del., had purchased the 2,000-ton plant of the Penn Sand & Gravel Compay, Tullytown, Pa., and the Van Sciver Corporation, Morrisville, Pa., had acquired the 5,000-ton plant of the Curtis & Hill Company.



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Hot or cold, wet or dry—Binkley Brothers, Inc., of East Petersburg, Pennsylvania, gets top performance from its equipment with the help of Gulf lubricants and fuels.

Gulf lubricants provide that extra margin of protection that's often needed when equipment must be pushed to the limit. Gulf fuels burn evenly and completely — insure full power and smooth engine performance.

And Gulf provides excellent engineering service to make certain that the right lubricants and fuels are used for each unit and climatic condition.

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NYLON in the U. S. Royal Con-Trak-Tor helps you through the heavy going—*keeps you on schedule!*

ALL-NYLON STRENGTH

The Con-Trak-Tor's Nylon cord body withstands murderous impact . . . means that you get every hour of tire life built into this great U. S. Royal tire.

TRIPLE IMPACT PROTECTION

The Con-Trak-Tor's built with extra rubber between cord-plies—double shock-pads beneath the tread—tough rock-resisting construction at the crown.

FULL LUG TRACTION

The Con-Trak-Tor's full-width lug design digs deeper, pulls harder in forward or reverse—actually works where other tires stall.

Prove it. Put the Nylon U. S. Royal Con-Trak-Tor to work—watch your pay loads stay on the move. Your U. S. Royal Dealer has it in your size, for your job.

NYLON...Keeps Pay Loads Moving!

U.S. ROYAL

CON-TRAK-TOR
FULL LUG

US RUBBER UNITED STATES RUBBER COMPANY

Barber-Greene Car Unloader
feeding 150 T. P. H.

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UNLOAD the cheapest way.

UNLOAD practically automatically.

UNLOAD a railroad car in less than 45 minutes

UNLOAD virtually all bulk materials with one machine.

UNLOAD with the positive chain-belt drive — no slippage, even when starting under full load.

UNLOAD with the machine above or below the rails.

Model 358 Unloader.
Gasoline or electric. Steel wheels or pneumatic tires. Towing hitch. High discharge height.

Let us show you how the Model 358 can solve your unloading problems.

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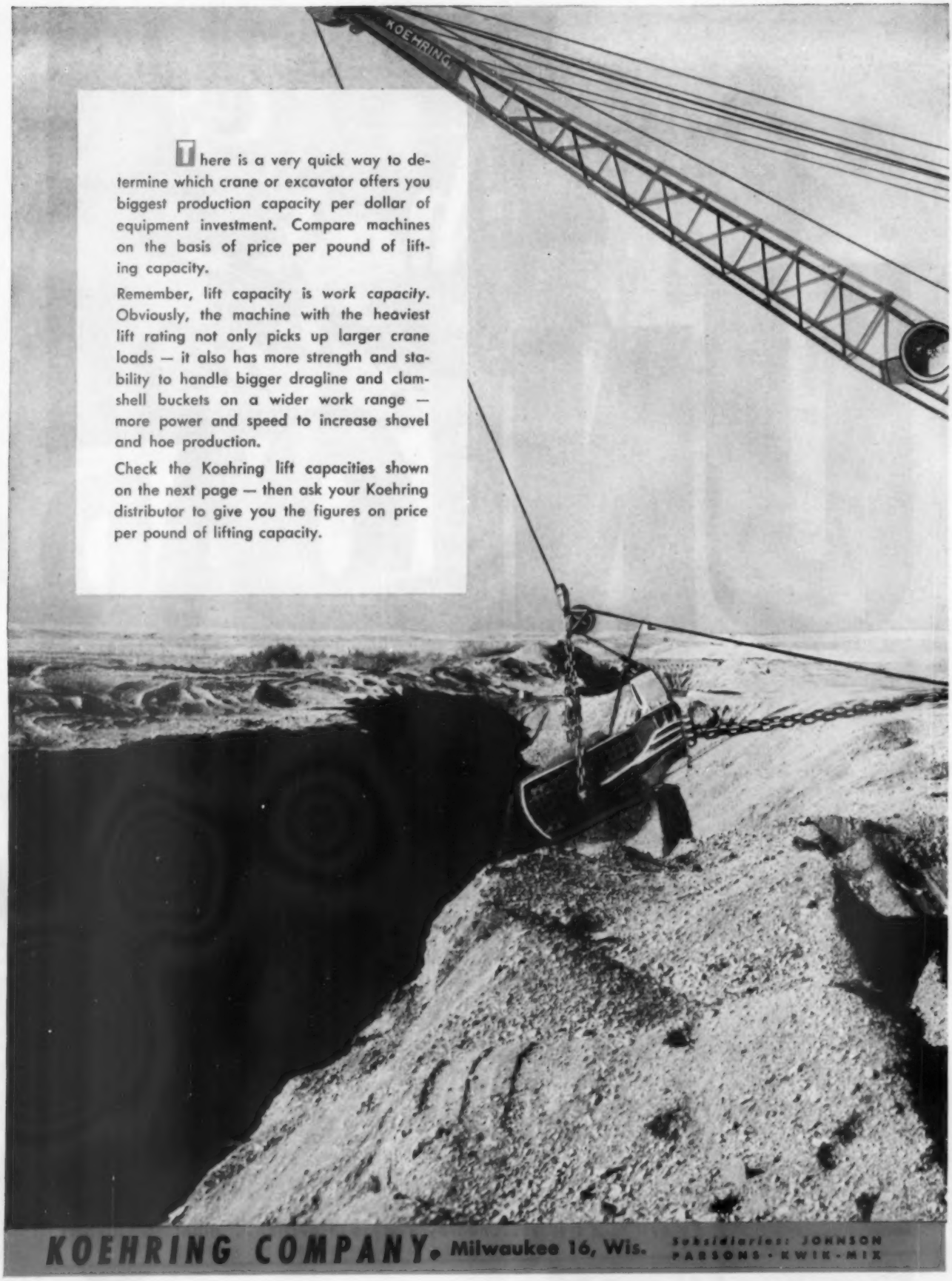
cost studies . . . nearby job inspection . . . plant layouts

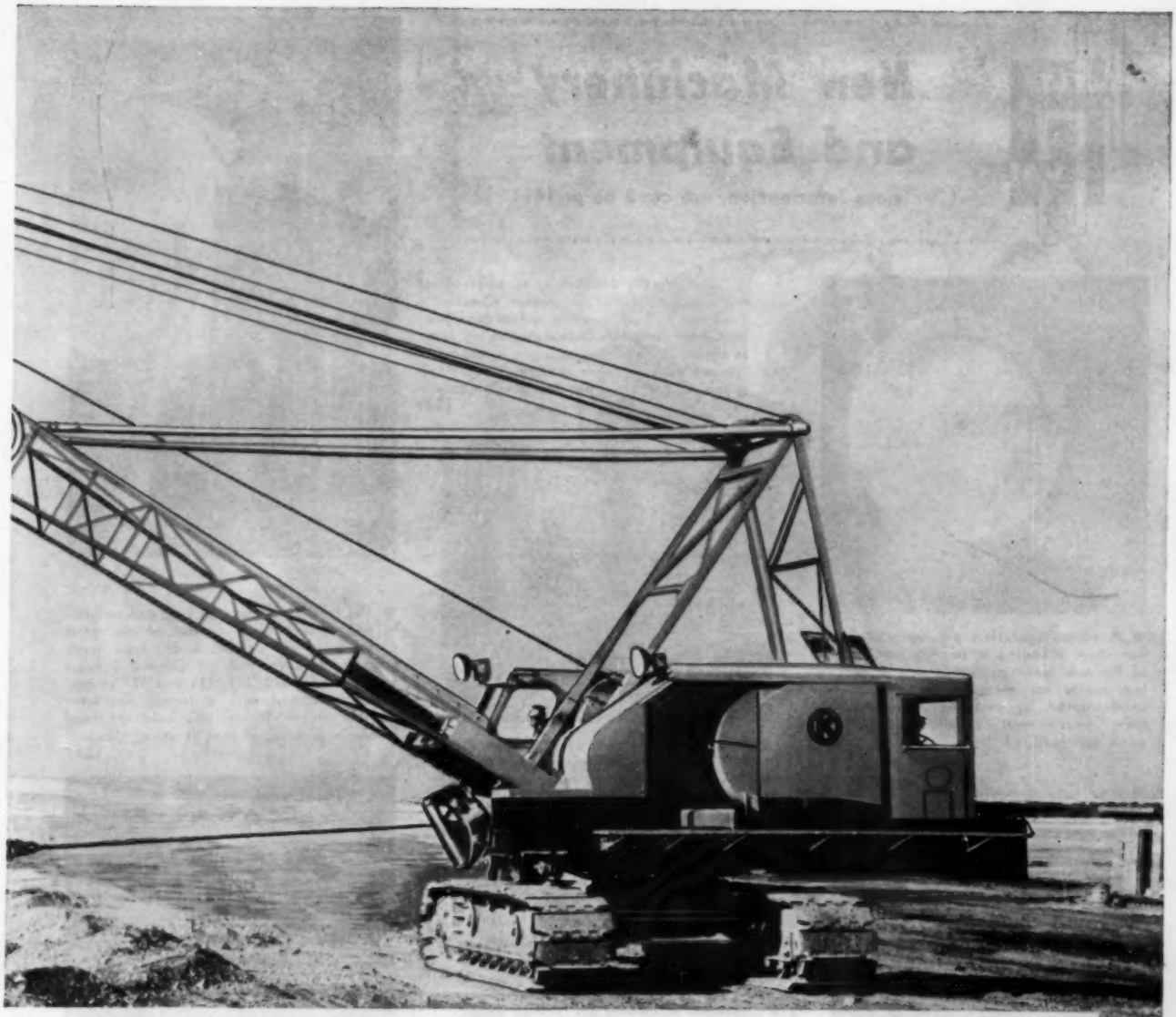


There is a very quick way to determine which crane or excavator offers you biggest production capacity per dollar of equipment investment. Compare machines on the basis of price per pound of lifting capacity.

Remember, lift capacity is *work capacity*. Obviously, the machine with the heaviest lift rating not only picks up larger crane loads — it also has more strength and stability to handle bigger dragline and clamshell buckets on a wider work range — more power and speed to increase shovel and hoe production.

Check the Koehring lift capacities shown on the next page — then ask your Koehring distributor to give you the figures on price per pound of lifting capacity.

KOEHRING COMPANY. Milwaukee 16, Wis. *Subsidiaries:* JOHNSON · PARSONS · KWIK-MIX



Check price per pound of lifting capacity

KOEHRING MODEL	SIZE DIPPER	KOEHRING LIFT CAPACITIES (Crawler ratings based on 75% of tipping load. Rubber-tired machines — 85% of tipping load)		PRICE PER POUND OF LIFT CAPACITY*
205 CRAWLER	½-Yd.	20,000 lbs.	30-foot boom at 10-ft. radius	?
205 ON RUBBER	½-Yd.	30,000 lbs.	25-foot boom at 12-ft. radius	?
304 CRAWLER	¾-Yd.	27,800 lbs.	35-foot boom at 12-ft. radius	?
304 ON RUBBER	¾-Yd.	50,000 lbs.	30-foot boom at 10-ft. radius	?
405 CRAWLER	1-Yd.	40,000 lbs.	40-foot boom at 12-ft. radius	?
605 CRAWLER	1½-Yds.	72,300 lbs.	50-foot boom at 12-ft. radius	?
1005 CRAWLER	2½-Yds.	159,000 lbs.	50-foot boom at 12-ft. radius	?

*Figures available on request—ask your Koehring distributor for them.

KOEHRING HEAVY DUTY

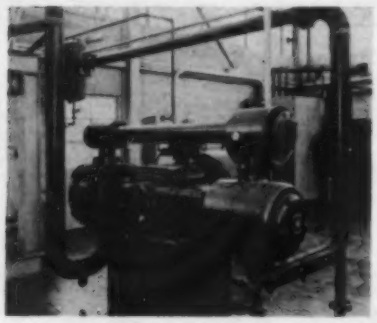
8430P.

New Machinery and Equipment

(For more information, use card on p. 145)

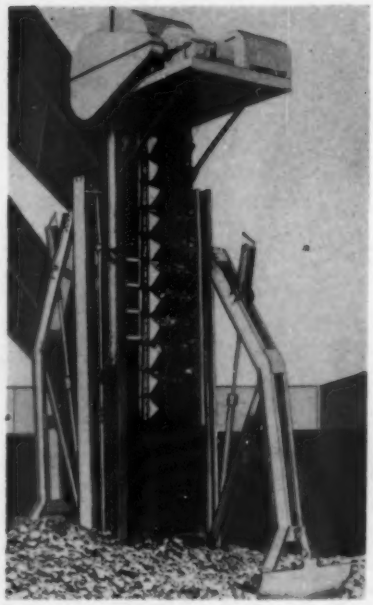
● A unique centerless pointer that simplifies chart changing is one of the features of the new General Electric line of process instruments for measurement and control uninterrupted by periodic standardization. New measurement circuitry and components are featured. (51)

● Hydraulically-controlled scraper arms reach out to feed the bucket elevator in this one-man bulk handling system developed by Cargo Handlers. Adaptable to all forms of materials handling, including loading, unloading, and stockpile transfer, the system is said to cut costs per ton considerably. (52)



● Ingersoll-Rand's new packaged air compressor in the 75-100 hp range is said to approach the efficiency and economy of larger, more powerful, slow speed units. It needs little floor space, a simple foundation and a minimum of piping and connections. The basic design is a two-stage unit for 80-125 psi but other cylinder arrangements may be had for higher pressures. (54)

● This offset Transportometer weighing scale is designed for use on belt conveyor installations where overhead clearance is limited. The weight integrator scale levers and suspension framework are located under the conveyor. The dust-tight cabinet at the side holds the weight integrator. (53)



● The hoist clutch can be engaged smoothly and with positive control of the hoist drums with this Easytouch disc-type servo hoist-clutch developed by Osgood-General for its Model 320, 322, 325 and 327 cranes. When combined with a torque converter on the engine, it lets you hold the load safely in mid-air, or inch it up or down. (55)

● This new 3-yd. shovel fills a gap in the Bucyrus-Erie general purpose excavator line. Readily convertible to dragline, clamshell or lifting crane, it incorporates the basic features and advantages of the present B-E 2½ to 4-yd. machines. (56)

● Made for a wider rim than conventional earthmovers (25 in.), these new Goodyear tires permit better vehicle performance through superior flotation. Two sizes are made: 29.5x29 and 29.5x25 (shown). Tread shown is the Earth Mover Sure Grip. Some are made with the Hard Rock Lug tread. (57)

Albemarle Integration

helps speed deliveries . . .

"Al. Kraft" is the doctor when it comes to speeding deliveries of Albemarle Multiwall sacks. That's because he can keep his finger on the pulse of the complete operation . . . from wood pulp to finished bags.

Albemarle Multiwalls come from a completely integrated mill that not only makes its own stout Kraft but has unusual facilities for color matching and printing. Albemarle's own machines paste and sew plain or valved bags in plies to suit your specifications.

FOR Multiwall CALL Albemarle

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BULLDOG NON-CLOG HAMMERMILL WITH MOVING BREAKER PLATE

For steady hour after hour production without jamming or clogging choose a BULLDOG NON-CLOG HAMMERMILL. Exclusive moving breaker plate eliminates clogging regardless of moisture . . . assures maximum output at all times.

Whenever it's a job for a hammermill, the BULLDOG HAMMERMILL is the mill for the job. You get more output with less horsepower, longer hammer life, minimum maintenance. More than 35 years of hammermill engineering and application experience gives you "Engineered to Your Job" installation. Write today for full information.

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FOR PRIMARY AND SECONDARY CRUSHING

- Non-Clog Moving Breaker Plate Hammermills for Wet Materials
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Capacities 1 to 1000 tons per hour

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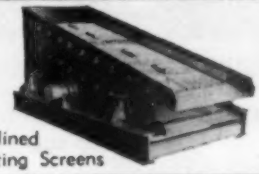
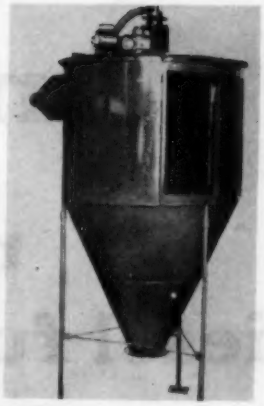


Inclined
Gyrating Screens

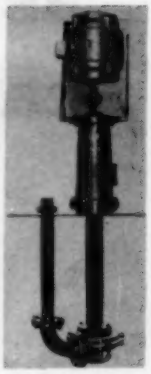
● Used in other countries several years, the Pinazza rock drill is now available in the U.S. Direct drive through flexible shafting results in more efficient power utilization, permitting the use of lightweight portable power plants, gasoline or electric. It drills wet or dry, cleans the drill hole automatically by air, and is not affected by altitudes. (58)

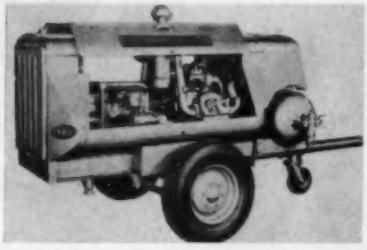
● Featuring a new rotary arm cleaning principle, the Model R Aeroturn reverse-air-jet dust collector introduced by Turner & Haws has cylindrical housing and continuous cleaning action to let it handle extra heavy loads without overloading. Capacities range from 300 to 10,000 cfm. (59)



● A high degree of maneuverability due to its exceptionally short wheelbase (120 in.) and high horsepower (225 or 275) highlights Dart's new 20-ton off-highway truck. Hydraulic steering turns it in a 21 ft. radius. Torque converter or conventional transmission are available. (60)

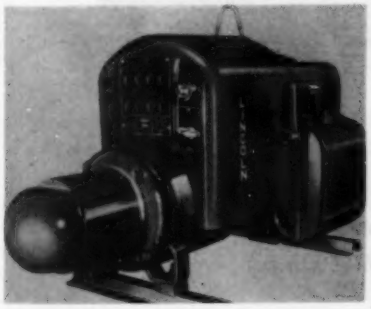
● Designed for abusive service, a new series of vertical shaft pumps introduced by Nagle Pumps offer a wider choice of settings, higher heads and greater design flexibility. Wet and dry pit units are available with or without submerged bearings. (61)





● Rated at 125 cfm, this portable compressor introduced by Gardner-Denver is a two-stage, water-cooled type driven by gasoline or diesel engine. (62)

● A combination welder and auxiliary power plant, the Lincoln Weldanpower features low cost, large capacity and simultaneous output of both welding and auxiliary current. It is rated as a 200 amp. welder and a 4 kva continuous duty or 5 kva intermittent power unit. It furnishes a wide range of ac welding current, and 230/115 volt, 60 cycle single phase ac power for tools and lights. (63)



● Ten "staggered" pneumatic tired wheels highlight this tow-type bituminous concrete and aggregate spreader from Highway Equipment Co. The screed is adjustable for spreading depths ½ to 8-in. It can handle stone up to 4-in. for base course, comes in four spread widths, 8, 9, 10 and 12-ft., has a hydraulic shut-off gate. (64)

● This new heavy duty dump trailer from Galion Allsteel is designed for use with tandem axle tractors. It has a 20 yard body capacity, rates a 30-ton payload. Mounted close together for maximum dumping stability, the twin hoist cylinders have a 75,000 lb. lifting capacity. (65)

Announcing...

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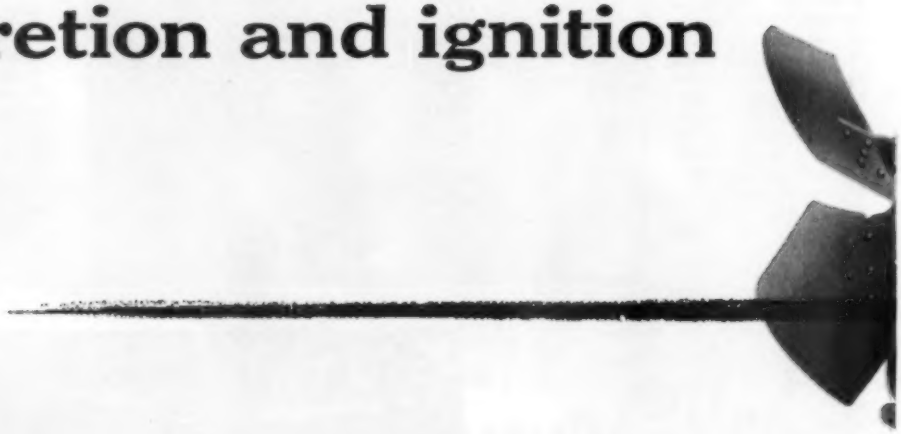

Exclusive PT Fuel System now standard on all Cummins Diesels

- Drastically reduces maintenance costs
- All mechanics can understand and service it
- Pump weighs only 13 pounds—system has no racks, check valves, metering plungers, discs, floats, etc.— does not have to be timed to engine
- Adaptable to all Cummins Diesels built since 1932

Write for your copy of descriptive folder "Cummins PT Fuel System."

CUMMINS **Cummins**

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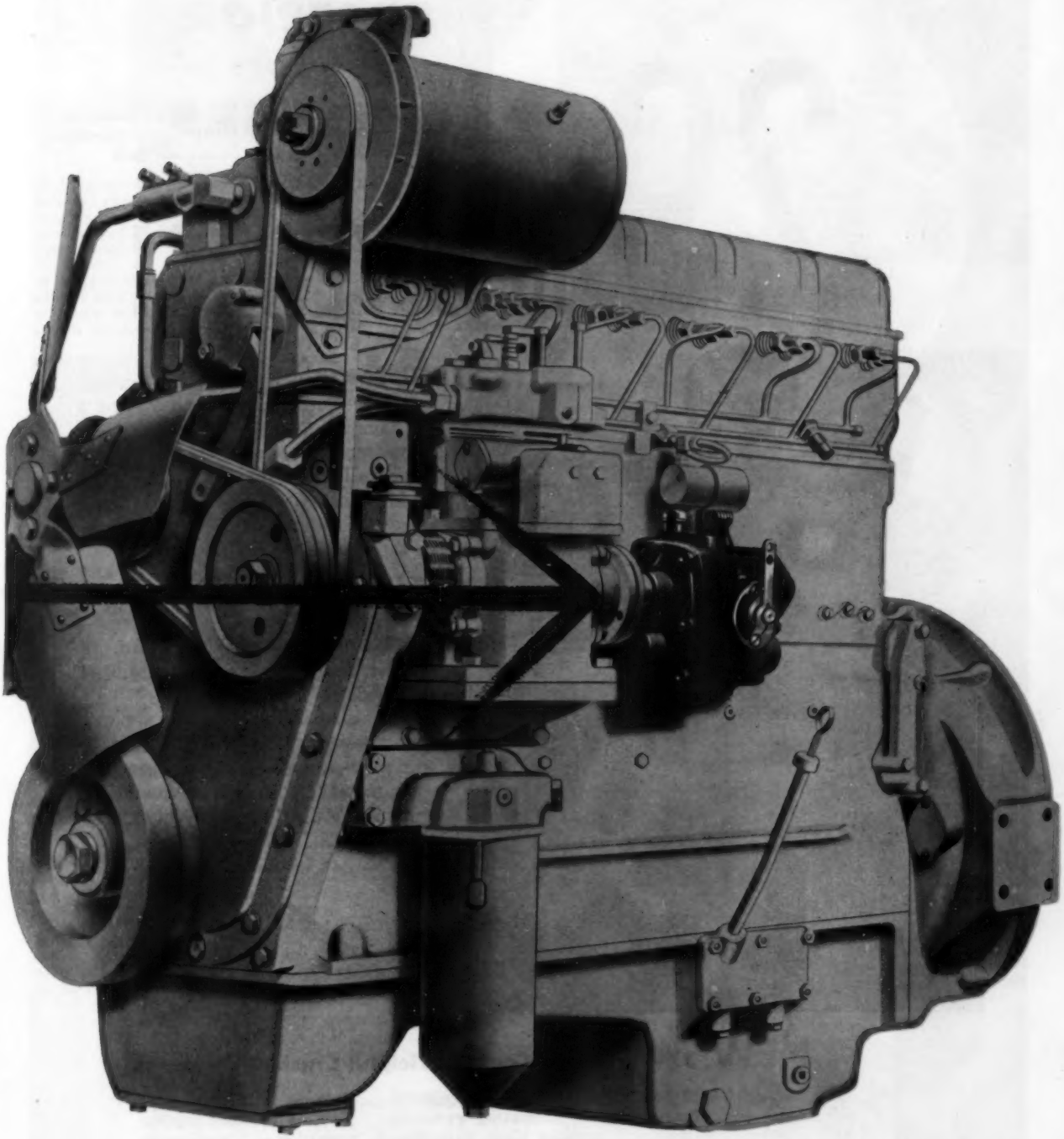
Leader in rugged, lightweight, high-speed diesels (60-600 h.p.)



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CRUSHERS

SUPERIOR primary and secondary gyratory crushers have been making a big name for themselves since they were introduced three years ago. Twenty-six are installed and operating... three are under construction now, including a huge 60 x 109 machine — largest crusher the world has ever known.

A policy of simplifying design and controlling quality has made Allis-Chalmers the leading builder of crushers. A continuing policy of *improving* crusher design has greatly extended this leadership.

This vast backlog of crusher application experience — over 75 years of it — is always available to you when you want to make sure of a successful installation. Allis-Chalmers, Milwaukee 1, Wisconsin.

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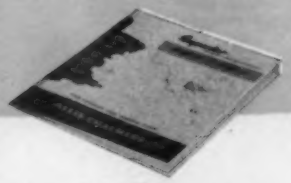

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- Step-by-step procedures for estimating gyratory crusher sizes, capacities. Examples are worked out.
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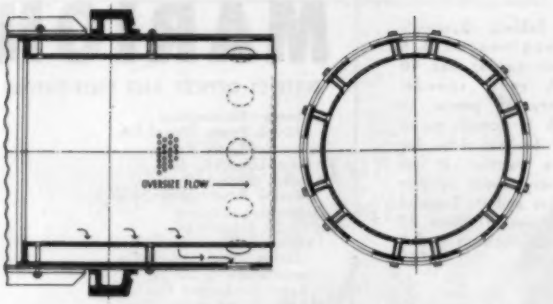
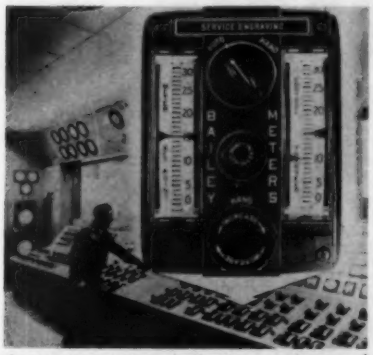
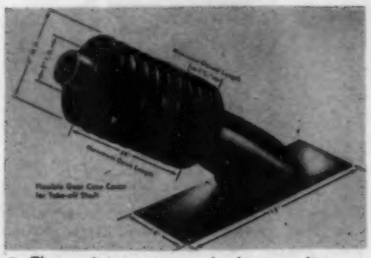


● Dredge screening capacity can be increased as much as 25 percent without lengthening the screen, Yuba Mfg. Co. says, announcing a new trommel for mounting inside regular revolving screens. Small perforations help classification. It fits the area blacked out by tread rings and end plates. (66)

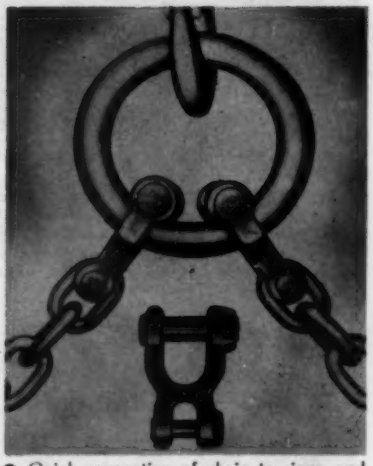
● Billed as the most powerful of its type, this Super 55 all-purpose wheel tractor introduced by Oliver Corp. has wheel treads adjustable from 48 to 76 in. It weighs 3,000 lbs., has a 73-in. wheelbase, and six forward speeds (one as low as ¾ mph.). (67)



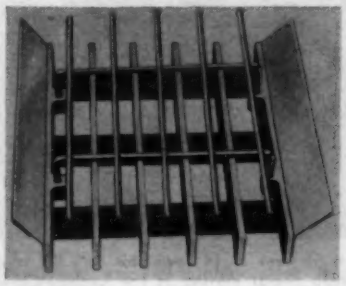
● Vital operating indications and control for pneumatic control systems are now concentrated in a single Bailey Meter Co. Mini-Line control station, which provides a complete picture of control system performance and full flexibility of remote control. The operator also has remote manual control independent of all automatic controls whenever needed. (68)



● The maintenance man's dream—dirt out, lubricant in—is on the way to fulfillment! These Gortite flexible, telescoping sleeves of Neoprene do the trick, giving pliable protection to moving parts that operate through three planes. Adaptable to all sorts of machinery, they have a wide temperature range. (71)



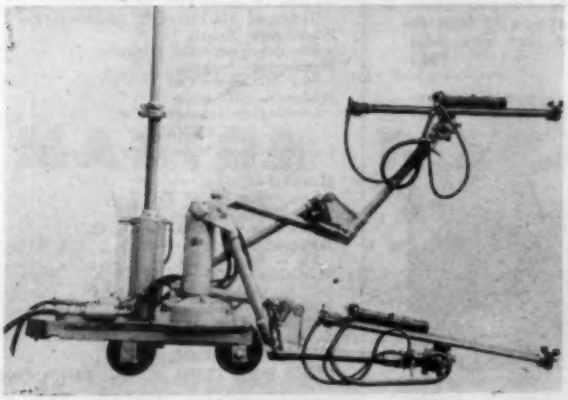
● Quick connection of chain to rings, and links, shackles, eyes, etc. is possible with Thomas Laughlin's new Double Clevis Link that eliminates welding and smithy work. A pair of pliers removes and replaces the cotter and bearing pins for attaching the clevis. Made for ¼ to 7/16-in. chain. (72)



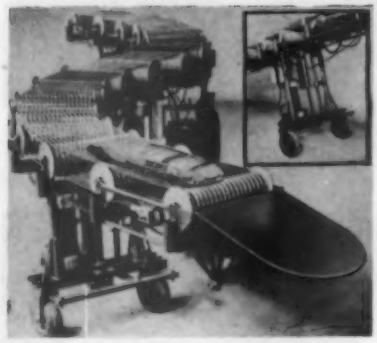
● A magnetic grate separator to place in hopper throats or floor openings to trap tramp iron is being built by Homer Mfg. Co. in sizes from 2x4-in. to 8-ft. square or larger. Horizontal rods function as a grizzly and deflect the material stream onto the magnetized bars. (69)

● Thor's new two-boom mining jumbo, completely powered and controlled by air, mounts a 3½-in. Power Feed drifter and an Air Bar Feed with 3-in. drifter for exhibition at Fall mining shows. (70)

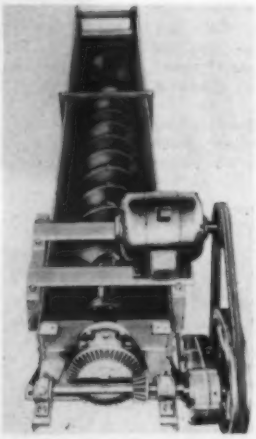
● Unloading 25 yards of rock in 14 sec. with perfect control at all times, the new Sierra Movall cable-operated end-dump wagon has interchangeable goosenecks to adapt it to the DW20 or DW21 tractor. It carries 31 tons, 19 yd. struck, 25 yd. heaped and has an 11x19-ft. shovel target area. (73)



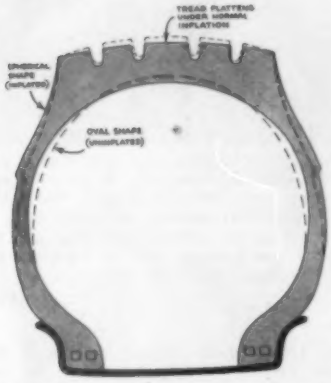
● Schield Bantem's re-engineered 6x6 crane carrier has 40 mph road speeds, plenty of power to work in rough going and 6-wheel drive for extra traction. It has a very short turning radius and its 2-speed transmission offers 10 speeds forward and 2 reverse. (74)



● Push-button control of discharge height has been added to Flexible box car unloader made by Power-Curve Conveyor Co. to permit the continuous discharge of bags at any height 3½ to 6½ ft. Two men will pack 30 bags a minute to ceiling height in box car or trailer with the mechanism. (75)



● McLanahan & Stone has developed a new type coarse material screw washer to wash and/or dewater gravel, crushed stone and other 2-in. maximum size materials. Single screws (60-185 tph) and double (105-325 tph) are available with 20, 24, 30 and 36-in. diameter flights. (76)



● Improved performance and significant economies are promised by Dunlap Tire's new heavy-duty truck tire design. A new mold shape lets the tire run cooler; newly-developed rayon cord is used; a new, superior carbon black is combined with the highest grade natural rubber tread stock. (77)

● A fleet of 14 Towmotor fork lift trucks keep things moving in the Laclede-Christy Co. refractory plant. About 75% of the shipments are palletized, wrapped in corrugated and bound with steel strapping to form an easily handled unit load that cuts brick damage. (78)

● Hard to reach places are pie for Ateco's heavy-duty loader for International TD6W and TD9W tractors, says Greenville Steel Car Co. It whirls in a tight circle, digs, strips, backfills, and loads trucks or gondolas at a 10 ft. height. (79)

MARION

DISTRICT OFFICES AND DISTRIBUTORS

Alabama—Birmingham
Marion Power Shovel Co.
Arkansas—Little Rock
Kern-Limerick, Inc.
Arizona—Phoenix
Marion Power Shovel Co.
California—Oakland
C. H. Grant Co.
California—San Francisco
Marion Power Shovel Co.
Connecticut—Plantsville
Tyler Equipment Co.
Florida—Jacksonville
Ogden Equipment Co.
Florida—Miami
Neff-Thomas Machinery, Inc.
Illinois—Chicago
Marion Power Shovel Co.
Indiana—Evansville
L. G. Currie
Iowa—Sioux City
Sioux Machinery & Supply Co.
Kansas—Pittsburg
H. W. Hubert Supply Co.
Maine—South Portland
N. A. Burkitt, Inc.
Massachusetts—Boston
Marion Power Shovel Co.
Massachusetts—East Longmeadow
Tyler Equipment Co.
Massachusetts—Medford
Pesco Equipment Corp.
Minnesota—Hibbing
Marion Power Shovel Co.
Minnesota—Minneapolis
Gopher Equip. & Supply Co.
Marion Power Shovel Co.
Missouri—Kansas City
Marion Power Shovel Co.
Missouri—St. Louis
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North Carolina—Statesville
Interstate Equipment Co.
New Mexico—Albuquerque
M & F Equipment Co.
New York—New York
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New York—Poughkeepsie
Torres Equipment Co.
New York—Utica
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Texas—Dallas
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Martin-Lumby Co.
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M. L. Baxter, Ltd.
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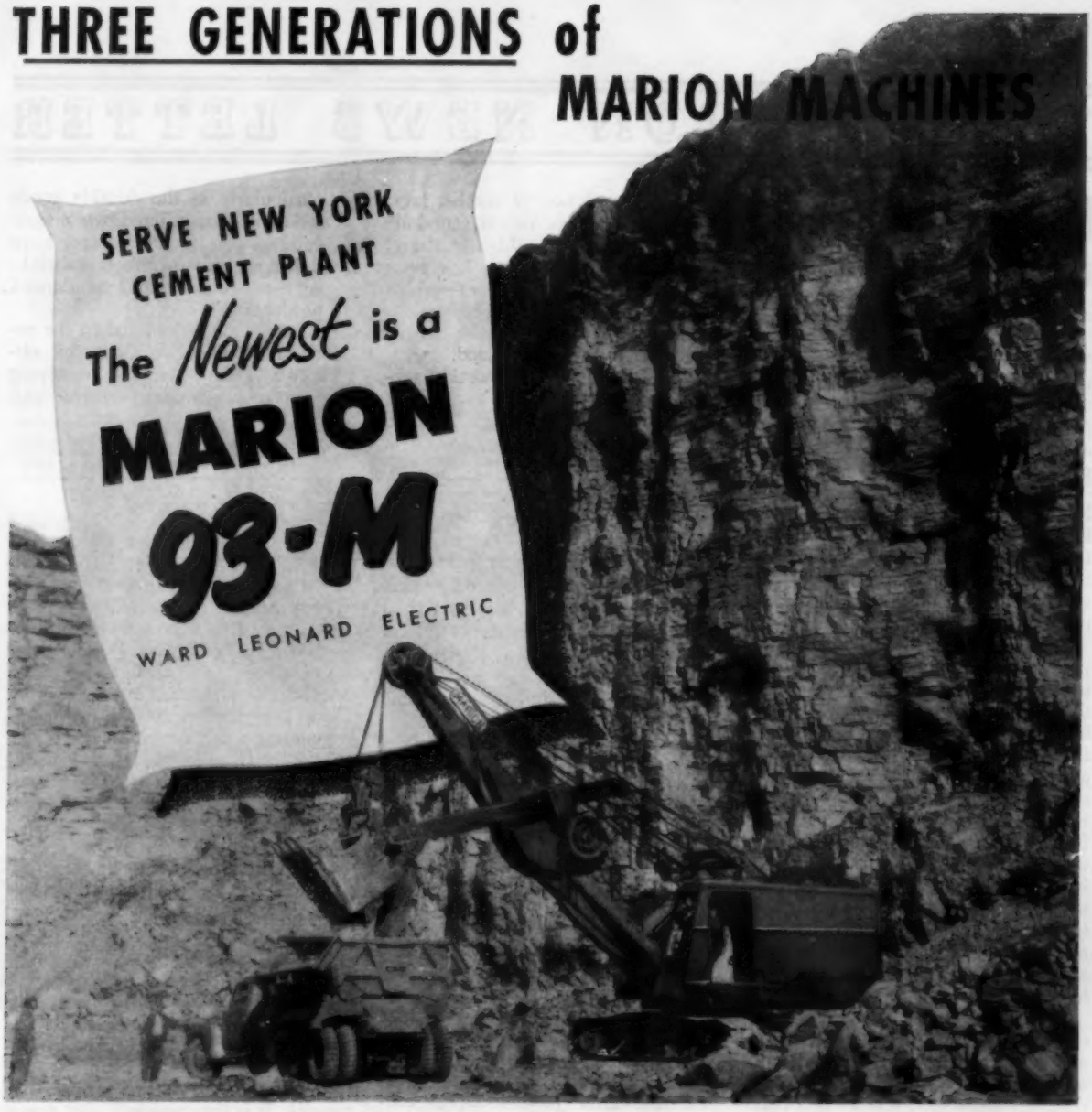
Huggard Equipment Co.
Bridgewater—Nova Scotia
LaHave Equipment, Ltd.

MARION POWER SHOVEL CO. • MARION, OHIO

THREE GENERATIONS of MARION MACHINES



This pit is the work of three generations of MARION machines. First, two early MARION steamers handled the job. Then three of the famous MARION 37 machines, no longer in the MARION line.

The newest, a MARION 93-M Ward Leonard Electric, is the most popular of all, for its smooth and fast handling of a 2½ cubic yard dipper keeps a fleet of trucks busy.

This loyalty to MARION machines — this continuity of preference from one generation to another — is not unusual. It is true of many companies that are leaders in the industry.

The MARION 93-M is a true MARION "rock-master," built to stand up in continuous service in the hardest materials. Get the details on the 93-M, either diesel or electric, from your nearest MARION Representative.

MARION POWER SHOVEL CO.

MARION, OHIO, U. S. A.

OFFICES AND WAREHOUSES

from 1 to 60 cu. yds.

IN ALL PRINCIPAL CITIES

OSGOOD•GENERAL, a subsidiary, manufactures excavating machines from ½ to 2½ cu. yds., truck cranes from 15 to 25 tons, Mobilcranes from 25 to 45 tons, and log loaders.

MARION REPRESENTATIVES LISTED ON ADJOINING PAGE

WASHINGTON NEWS LETTER

THE adjournment of Congress officially begins the election season. It is clear now that both parties agree that the key factor in the coming election is prosperity.

The Democrats' principal hope for a substantial victory was based on their belief that by election time the nation would be in a deep recession, perhaps even a depression. It is almost certain now that this dire prediction will be wrong.

Since this campaign rests primarily on economics, President Eisenhower's recent statement on the national economy may be regarded as the first shot. The timing of this statement right before the campaigns really get going was no accident.

In his statement the President pointed to all the best aspects of the nation's economy. He conceded that there has been a very small decline between the first half of 1953 and the first half of 1954. And he suggested that "It may help us to see the current state of the economy in better perspective if we go one year further back. The first half of 1952 was not characterized by the same intensity of activity but it was the best year we had experienced prior to 1953. Therefore, while 1952 does not provide us with as high a standard as 1953, it still constitutes a very high standard."

Every one of the economic indicators which he used showed a rise and some of the increases were not small. From these facts he concluded: "Since 1952 was the best year since this Administration took office it follows that economic activity of late has been higher than at any time before this Administration assumed responsibility. And since 1953 was a still better year than 1954 is turning out to be, it follows that the over-all performance of the American economy thus far during this Administration has been better than during any earlier time."

Here are the economic indicators on which the President relied:

Economic Indicators	Present Changes			
	from 1st half of 1953 to 1st half of 1954		from 1st half of 1952 to 1st half of 1954	
1. Industrial production	down	8.1%	up	3.3%
2. Gross natural product	down	2.7%	up	4.4%
3. Non-agricultural employment	down	2.6%	up	1.1%
4. Personal income	up	0.2%	up	7.2%
5. Disposable personal income	up	1.4%	up	8.3%
6. Per capita disposable personal income	down	0.3%	up	5.3%
7. Bank debits outside New York City	up	1.9%	up	10.2%

He then took note of another fact; namely, that while recent economic activity has been at a high level and the value of the dollar has been stable, the increase in wages—which is one of the principal expressions of the progressiveness of the American economy—has continued.

Here are the statistics on that subject:

Average Hourly Earnings	Cents-per-hour-changes	
	from 1st half of 1953 to 1st half of 1954	from 1st half of 1952 to 1st half of 1954
Manufacturing, total	+2.9¢	+ 9.1¢
Durable goods	+2.2¢	+ 9.2¢
Non-durable goods	+3.8¢	+ 7.8¢
Building Construction	+5.3¢	+13.3¢
Retail trade	+4.3¢	+10.8¢

Nevertheless, he concedes that "Unemployment is now greater than during the . . . Korean war. . . .

"It is clear, however, that unemployment in recent months has not been larger than during comparable months in 1949 and 1950.

"Moreover, the rate of unemployment has shown some tendency to diminish of late."

Recognizing that this is not a perfect bill of health, the President anticipates that not everyone will agree with him, and it is not difficult to guess whom he has in mind. Obviously to reduce the effectiveness of their criticism, he has included the following in his statement:

> "Not all of our contemporaries, however, are describing the performance of the American economy in these lyrical terms. The reason is partly that a decline occurred after July, 1953, in economic activity, particularly in employment, and that the thinking of many people is geared to the concept of uninterrupted progress. The reason is partly that this rather minor decline has been better advertised than many major declines of our past. The reason is also that, while the decline has been small on an over-all basis, it has affected seriously some industries, communities, and groups in our society. Factory employment, particularly in the durable goods industries, has suffered, while agricultural prices and incomes have shown the adverse effects of shrinking export markets and unbalanced production."

Later, when he pointed to the reduction of unemployment, he observed, "This is one of numerous signs of economic improvement" and then went on to enumerate a number of other signs as follows:

> ". . . Retail sales have recently been rising again. Business expenditures on capital expansion and improvement are continuing at a high rate. New construction contracts are running well above the level of a year ago. Inventories have been reduced and are now in better adjustment to current sales. The financial markets have been displaying great strength. The level of business and consumer confidence in the economic future is high and improving."

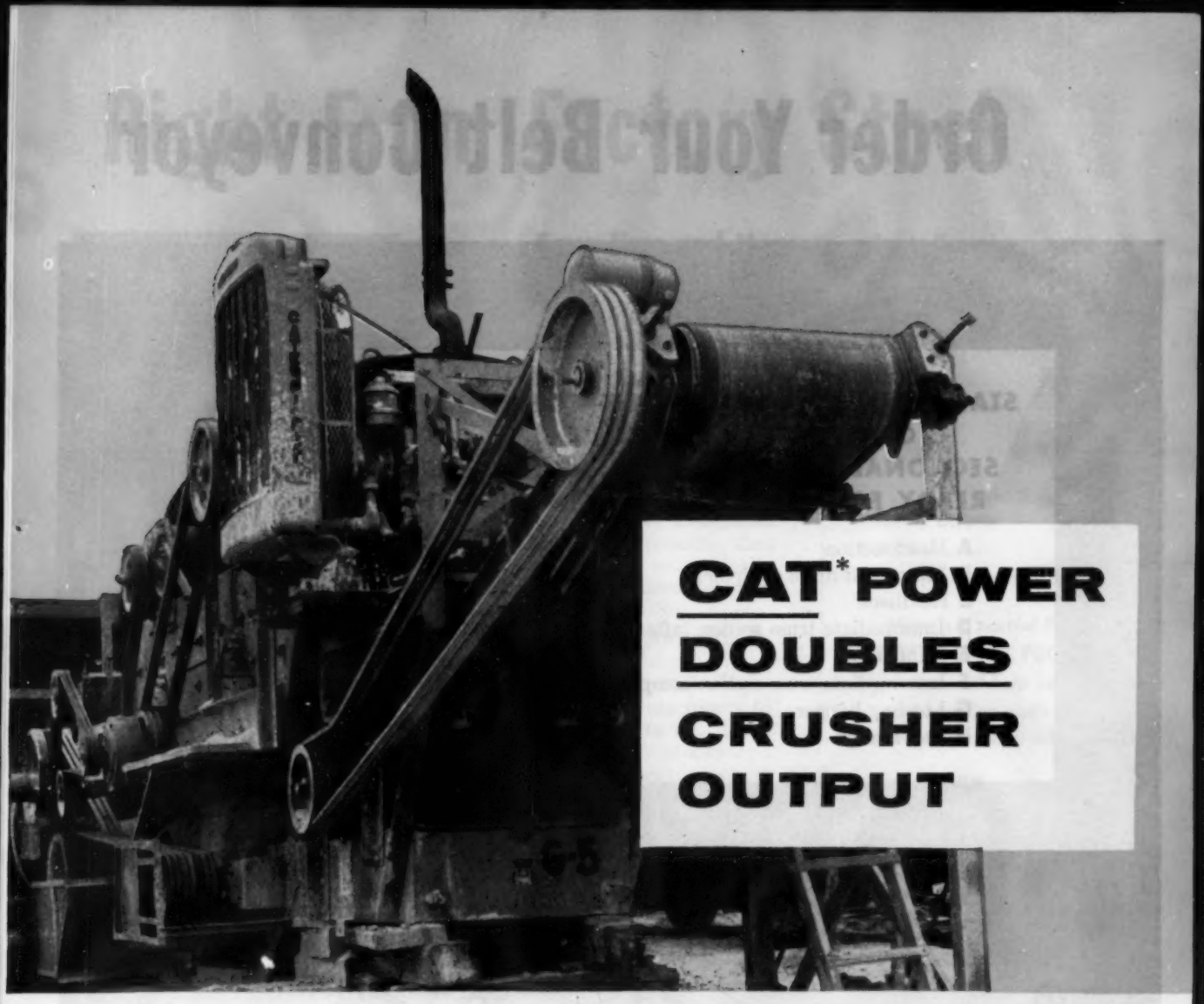
Will this rather impressive record of economic strength leave the opposition speechless? No such unprecedented result can reasonably be expected.

Since they cannot claim depression, a new word has come into vogue. It is "stagnation", and it will be heard many times more before the votes are counted in November.

They will use the President's own figures and point out that stagnation has set in. They will argue that the economic indicators that showed a decline, particularly industrial production and employment, are under the control of the President's own appointees, such as the Secretary of Defense, and the President's own friends and backers, such as the nation's industrialists. They will go on to argue that the indicators which held their own, the measures of personal income, would not have shown up so well if it had not been for the strength of labor unions which, despite strong opposition, managed to increase workers' earnings.

They will argue further that, if present tendencies continue, a year

(*Continued on page 78*)



CAT* POWER DOUBLES CRUSHER OUTPUT

With an engine of another make, this Cedarapids portable crusher produced just a little over half capacity. Since switching to a Caterpillar D337, Ervin Clark Construction Co. reports *full capacity* of 100 tons per hour on this job at Logan, Iowa. Also on the job are four other Caterpillar Engines and an HT4 Shovel.

Caterpillar Engines are honestly rated. You get every horsepower you pay for—*at the flywheel*, and not on an engineer's slide rule. This is vital to high output and efficient operation, because you can be sure you're getting the right engine for the job.

Ervin Clark, owner of Clark Construction Co., reports that he has never had any trouble with his Caterpillar Engines. They run cheaper and longer than his former power. He especially likes their ease of starting by means of a gasoline starting engine, which preconditions the diesel.

Long work life and low down time are built into every Caterpillar Engine by such features as wear-resisting aluminum-alloy bearings and pistons, "Hi-Electro" hardened crankshaft journals, and Caterpillar's famed precision workmanship. Especially important on dusty jobs around rock are Caterpillar's really *effective* engine filters and seals, designed to keep lubricants *in* and harmful grit *out*. And Caterpillar's special fuel-injection system means full and *foul-free* power on low-cost No. 2 furnace oil.

Your Caterpillar Dealer—who offers fast, skilled service and genuine factory parts—will help you select the right engine or electric set for *your* job. There are 12 sizes, up to 500 HP and 315 KW. Leading manufacturers can supply Caterpillar power with their crushers, shovels, compressors and other rock-working machinery. Be sure to specify Caterpillar when you order new equipment, or repower.

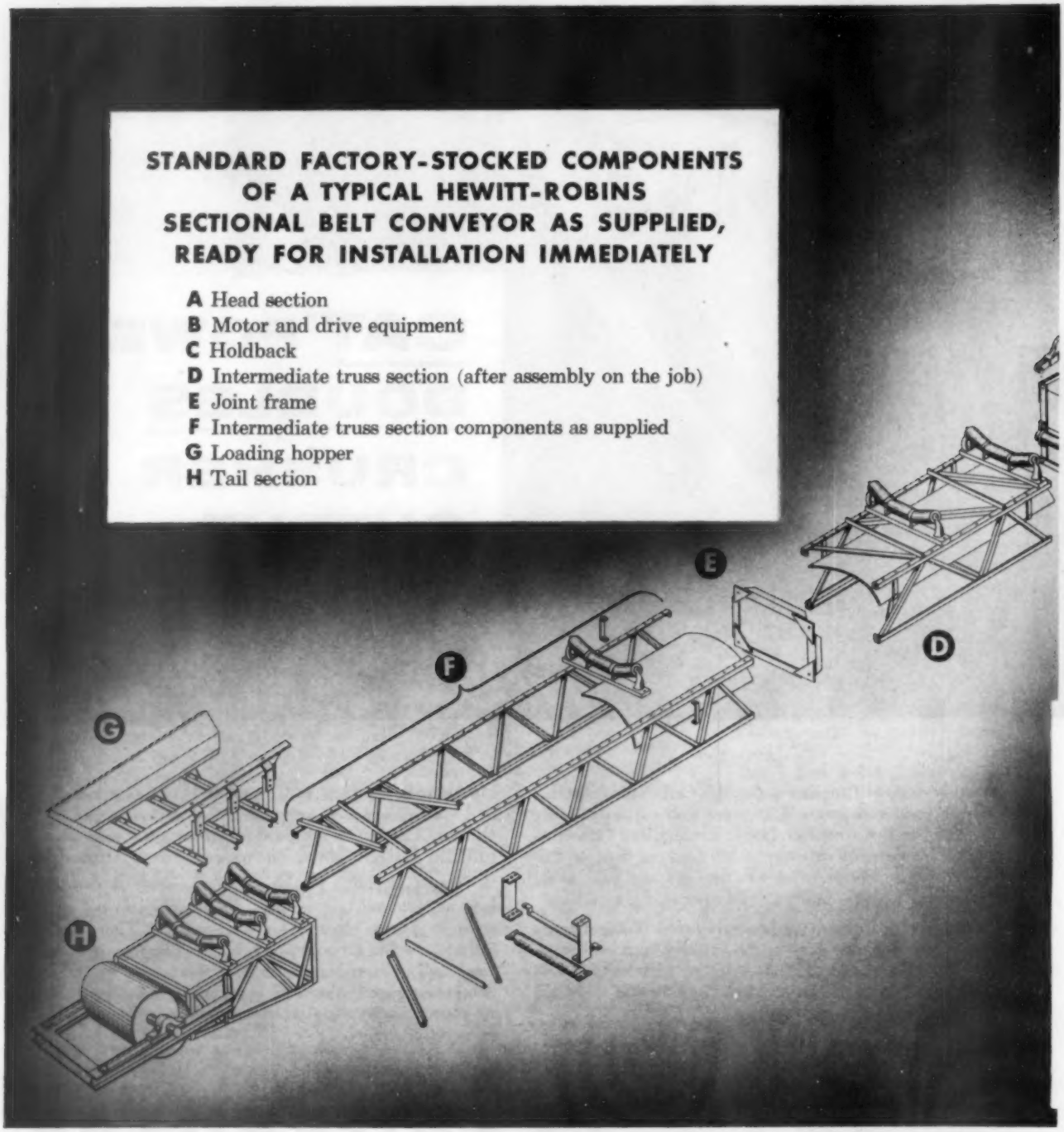
Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

SPECIFY CAT POWER FOR HIGH-PROFIT PERFORMANCE

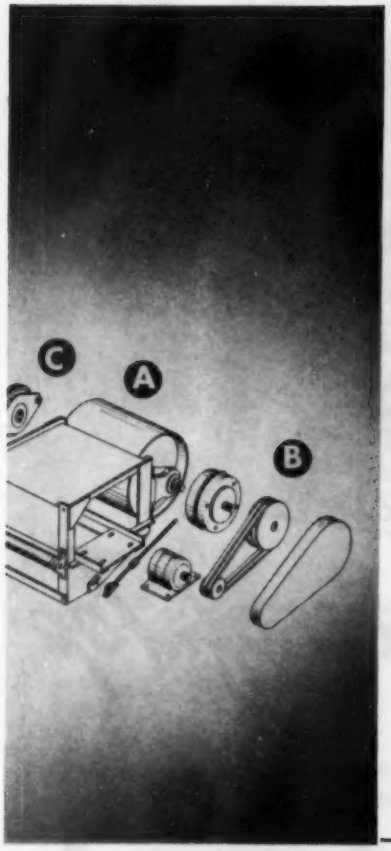
Order Your Belt Conveyor



HEWITT-ROBINS

EXECUTIVE OFFICES, STAMFORD, CONNECTICUT

Right From Factory Stock



Save Time and Money . . . Install your own Hewitt-Robins Sectional Belt Conveyor from Easy-to-assemble Factory-built Components

Now, for the convenience of large and small plant operators alike—Hewitt-Robins offers a standardized sectional conveyor adaptable to a wide variety of uses.

Hewitt-Robins Sectional Conveyors consist of completely assembled factory-stocked components that can be quickly and economically installed and maintained by your own personnel.

When you order a Hewitt-Robins Sectional Conveyor you can be sure of prompt delivery . . . all components and parts from machinery to belting are shipped to you direct from standard factory stocks . . . saves you time and saves you money.

For prompt information about the Sectional Conveyor and any other Hewitt-Robins bulk material handling products, contact the Hewitt-Robins office nearest you or write direct to Passaic, New Jersey.

ENGINEERING DATA

APPLICATION: Designed to handle bulk and packaged materials where special limitations and conditions do not require the use of custom-engineered belt conveyors.

MATERIALS HANDLED: Sand, gravel, run-of-mine ore, coke, stone, coal, gypsum, grain, sugar beets and any other bulk materials that can be handled more efficiently and economically by belt conveyor.

CAPACITIES: From 20 to 500 TPH at belt speeds from 200 to 450 feet per minute.

STANDARD WIDTHS: 18", 24", 30", 36".

LENGTH: From 15'6" up to any length consistent with good conveyor practice . . . inclines up to 22½°.

STANDARD HORSEPOWER: From 2 to 30 hp.

IDLERS: 4" or 5" diameter troughing and return idlers available. Both types have exclusive Hewitt-Robins patented Triple Grease Seal and one-shot lubrication.

BELTING: Complete selection of all Hewitt-Robins standard stocked belts. Special belts available when necessary.

INSTALLATION: All standard factory-assembled components are clearly labeled and shipped with complete instructions, for quick, easy assembly by your own personnel.

Write for Bulletin #132-B on your company letterhead

Here is a partial list of* HEWITT-ROBINS PRODUCTS *that will help you cut handling costs and increase operating efficiency

MACHINERY:

- Belt Conveyors
- Belt & Bucket Elevators
- Car Shakeouts
- Screen Cloth
- Vibrating Conveyors & Screens

INDUSTRIAL RUBBER PRODUCTS:

BELTING:

- Conveyor
- Elevator
- Transmission

HOSE:

Hewitt-Robins makes over 1,000 different types of industrial rubber hose, including Twin-Weld®, the patented twin-line welding hose.

For information and service on industrial rubber products, contact your Hewitt-Robins Industrial Supply Distributor. Through his complete stock of Hewitt-Robins Rubber Products, and his familiarity with local field conditions, he can fill your supply needs promptly and correctly. See Classified Phone Book for the Hewitt-Robins Industrial Supply Distributor serving your area.

3081

INCORPORATED

DOMESTIC DIVISIONS: Hewitt Rubber • Robins Conveyors • Robins Engineers • Restfoam

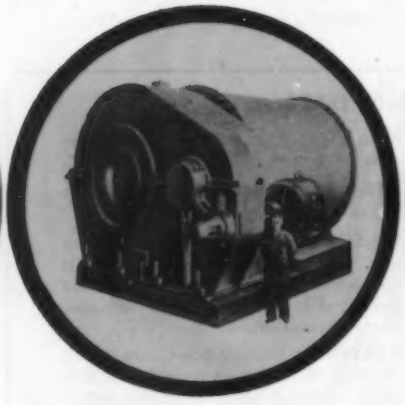
FOREIGN SUBSIDIARIES: Hewitt-Robins (Canada) Ltd., Montreal • Hewitt-Robins Internationale, Paris, France • Robins Conveyors (S. A.) Ltd., Johannesburg • **EXPORT DEPARTMENT:** New York City.

KENNEDY...

Your assurance of Top

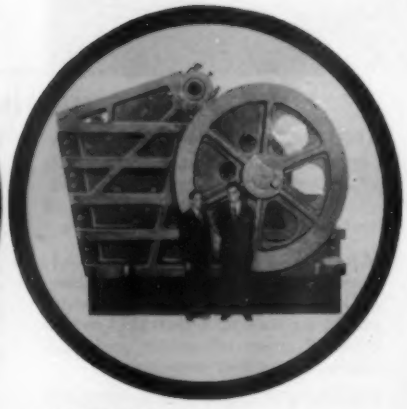
GEARLESS GYRATORY CRUSHER

Two discharge outlets eliminate clogging of sticky clay. Handles all types of rock and ore.



INTEGRAL GEAR DRIVE

Furnished on mills of any diameter and length. Self-aligning bearings, gears automatically oil sprayed. Patented perfection in mill design.



SWING JAW CRUSHER

Open hearth or Herculite steel — Reversible jaw plates, end-to-end, side-to-side, providing double wear. Jaws and shaft cast integral can't work loose.

KVS Equipment remains the best at its price

Substantial savings in power. Economical operation — low maintenance cost.

Minimum parts replacement. Continuous operation under most severe conditions.

Peak production . . . cost-saving efficiency. No sticking or clogging.

All controls within easy reach. Designed for ease of installation.

Wide range of primary and secondary crusher sizes.

Crushing and Mining Machinery & Equipment

performance!

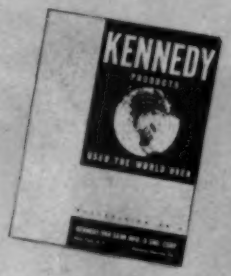
In use throughout the world, KVS crushing and mining machinery saves time and produces peak capacities on every shift.

Noted for stamina, strength and versatility, KVS crushers and mills are handling all grades of rock and ore from Tachonite to limestone. Years of rugged service in the field prove the *lasting* efficiency and economical operation of this outstanding equipment.

Before you specify, consult KVS sales-engineering department. Over a half-century of "know-how" is at your disposal. Consultation anywhere in the world.

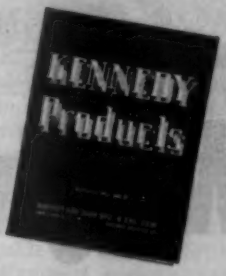
Send for bulletin describing KVS crushing and mining machinery.

BULLETIN #49A
Crushers, Conveyors, Elevators, Screens, Classifiers, etc.



BULLETIN #44C
Tube, Ball and Rod Mills for wet or dry grinding.

BULLETIN #44B
Cement Kilns, Coolers, Dryers, Preheaters, Deheaters, Soaking Pits, etc.

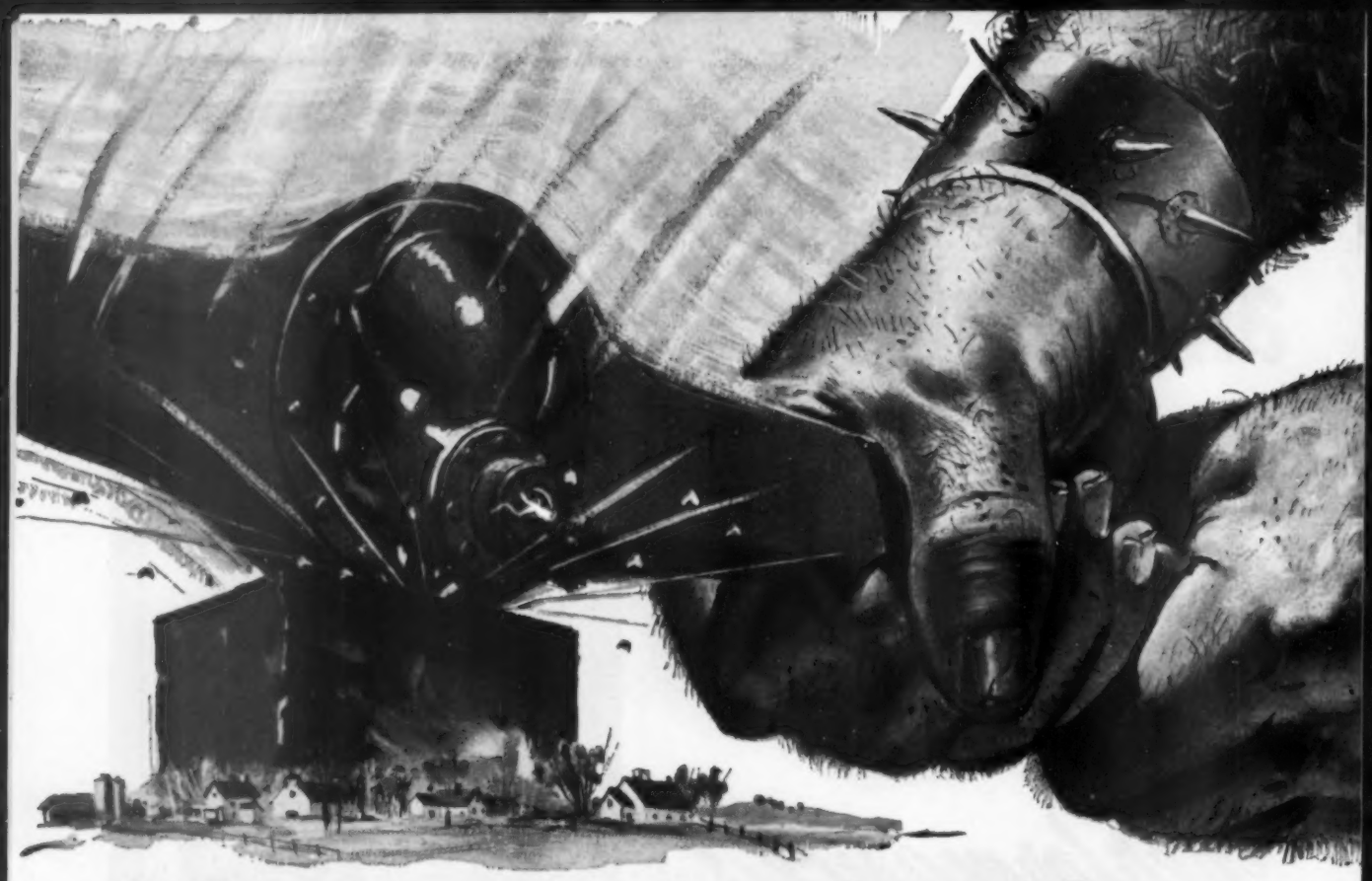


BULLETIN #52F
Automatic Pneumatic Transport Systems, Air Conveyors, Air activated Containers.

KENNEDY-VAN SAUN

MANUFACTURING & ENGINEERING CORPORATION

TWO PARK AVENUE, NEW YORK, N. Y. • FACTORY: DANVILLE, PA.



We give truck axles a brutal

in the new Timken-Detroit indoor proving ground

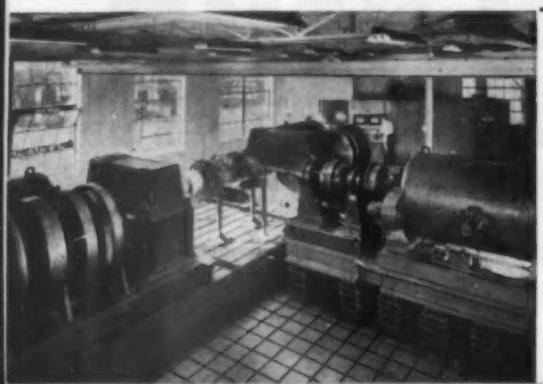
...and only Timken has it!

We smash, twist, jerk and over-load them. Match every imaginable hauling situation. Then add a few ruinous tricks of our own.

It's done on purpose. So we can tell you in advance that a Timken-Detroit axle can take a more brutal beating on the job it was designed for than any other axle made.

To prove it, we condensed a multi-thousand acre proving ground into one room. In it, our engineers can apply 50 years of experience in building axles for trucks, buses and trailers. Here axles and gearing are subjected *indoors* to any possible *outdoor* hauling condition. Axle performance is measured and analyzed under absolute scientific control!

As a result: you enjoy longer axle life; less maintenance, repairs and down-time; lower operating costs; fatter profits. No wonder Timken-Detroit axles are the choice of manufacturers and owners everywhere!



How TDA proves axle quality in this "Torture Chamber."

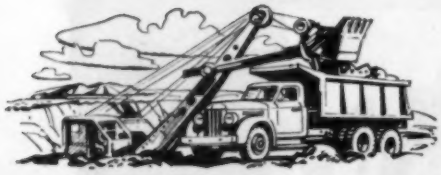
We take one of our axles and put it on the "block". . . . then duplicate the roughest hauling condition, hour after hour, day after day . . . such as simulating 500,000 miles of toughest driving in just a few days. Or we "dream up" a test like going up hill with a full load at 45 m.p.h. from California to New York—*non-stop*. There is no other axle testing like it in the world!

This is our "truck driver." He works in the "Torture Chamber." Above him are graphs showing speed and torque performance under any operating condition he chooses . . . soft ground at full load . . . mountains . . . express highways or side roads. With special dials, recorders and electronic devices, he actually *drives* the axle with scientific accuracy from his chair!

THREE TYPES: Hypoid-helical double-reduction, optional inter-axle differential. Worm drive, without inter-axle differential.

Hauling wet mix? You need Timken-Detroit axles—duplicates of axles that have been given the "works" in our indoor testing laboratory. Simulating the punishment the axle would get hitting a chuck hole with a capacity load every 4 seconds, 24 hours a day, month after month! And it's all done to save you money on maintenance and repairs—make you more money every load.

beating



TIMKEN Detroit AXLES

TIMKEN-DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32, MICHIGAN

The Accepted D A Standard

TRADE MARK REGISTERED

"TORTURE-TESTED"
to Save Money on the Job

WORLD'S LARGEST MANUFACTURERS OF AXLES FOR TRUCKS, BUSES AND TRAILERS

For six-wheeler operation . . . the TDA Tandem Drive Rear Axle Unit

Now—the *world's finest* tandem drive rear axle unit for heavy-duty motor trucks! And with these features, developed, introduced and pioneered by TDA: (1) Available in 3 types of final drives and 3 capacities. (2) Top-mounted straight-line final drive eliminates propeller shaft angularity. (3) Optional inter-axle differential . . . spur gear design, cab-controlled power-lockout. (4) Torsion flow axle shafts . . . guaranteed for 100,000 miles or three years, whichever occurs first. (5) Hot forged steel axle housing . . . guaranteed for the life of the vehicle. (6) Unit-mounted "P" series power brakes . . . for longer life, greater economy and efficiency. (7) Cradle ride spring suspension and paralleled torque rod system . . . maintain correct alignment and weight distribution regardless of driving and braking conditions. (8) Exclusive two-piece trunnion tube bracket speeds servicing. (9) Removable torque rod and spring guide brackets . . . for positive alignment, easier replacement. (10) Rubber torque rod bushings and rubber spring seat bushings . . . eliminate metal-to-metal contact. Require no lubrication.

Increase axle life with Genuine TDA Equipment Parts

Take no chances with ordinary replacement parts. For sure, dependable factory-type jobs, look to genuine Timken-Detroit axle parts kits—identical to your axles' original equipment.

Each kit is *complete*—gives you everything you need—in one handy package. Gaskets and shim parts, brake liners, steering knuckles, differential gears—for every size of brake and axle. Order by number from your dealer. Cut labor and adjustment costs. Get trucks back on the road quicker!

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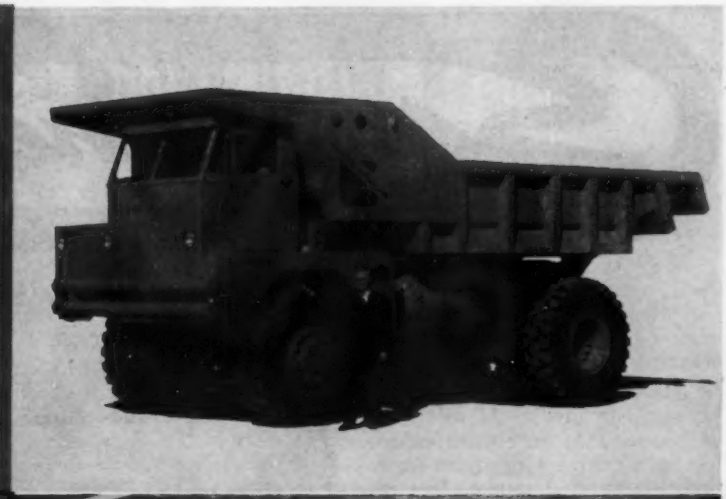

OR UNDERGROUND

DART MODEL 18-S-UG-S

MODEL 18-S-UG-S—18 ton underground truck powered by 275 H. P. Diesel Engine with torque converter and fully reversible transmission. Hydraulic motor operates steel apron conveyor. Equipped with exhaust scrubber. Hydraulic steering. Operates as shuttle car. Height, 66"; width, 10'8"; length, 28'. Approximate weight, 39,000#.

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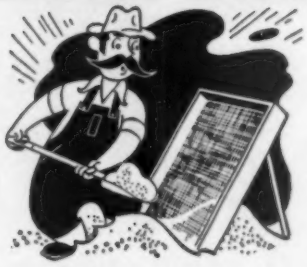
Screenings



by Ray L. Smith, Jr.

George Thinks So Too

THE other morning, while reading our copy of *The Morning Yell*, we learned that the cement industry has been getting plugs from an entirely unexpected source. It seems, that, none other than the well known TV piano virtuoso *Liberace* has whipped up an operatic version of *Cement Mixer—Putti, Putti*. Sounds like it should be a natural for adoption by the Portland Cement Association as their theme song. The manufacturers of both mixers and portland cement should start fan clubs, for no doubt, sales of their products will skyrocket any day now.

Egyptsum

ONCE upon a time, forty-seven hundred years ago to be exact, a chap by the name of Cheops, famous Pharaoh, who built Egypt's greatest pyramid, shuffled off this mortal coil. Pharaoh Cheops was the playboy of his time; nevertheless, he, like those before him, stopped between plays long enough to plan for his demise. He supervised the building of his tomb and in the crypt he placed a ship to carry his soul to heaven.

Whether or not the mortuary vessel served its purpose, nobody knows.

It was, at least, successful in spotlighting the fact that gypsum, a highly versatile substance, is one of the world's oldest building materials.

Kamal el-Malakh, Egyptian archeologist, made this historic discovery recently, when the tomb of Cheops was opened. For the 15-ton limestone blocks forming the roof of the 33-yard long chamber, were sealed together with pink gypsum.

The earliest known use of gypsum in ancient Egypt, about 5,500 years ago, was to mend broken pottery. By 2700 B.C., however, there are evidences of its use in construction as both a mortar and a plaster.

Today, gypsum is used in making yeast for bread and in processing beer. It's an ingredient in toothpaste, face powder, safety matches, and poker chips. And most of the better mannequins in store windows are made of gypsum.

Pharaoh Cheops is probably spinning around like a top in his boat, chiding himself for playing so much, when he could have been just sitting around drinking gypsum beer, playing poker with gypsum chips and/or powdering the noses of his dancing girls with gypsum powder.

No Site In Sight

WORD has gotten around that, North Little Rock, Ark., is having its share of troubles these days trying to find a site for a $30,000 "white elephant".

Seems that several administrations ago, the city council purchased the "white elephant", a crushing plant that has never crushed, together with an asphalt plant, and a street roller. They were going to begin a program of street improvements. Shortly after the purchase, their lease on a nearby quarry was forfeited, and they were left holding the—you know what.

The incumbent mayor insists, "Something's got to be done, the machinery's going to pieces along with the streets." So they all start out on a quarry-hunting expedition. To date, no luck.

Obviously there's only one solution. If they can't take the crusher to a quarry, somebodys just got to figure out a way to bring a quarry to the crusher.

Some minds are like concrete: all mixed up and permanently set.

A Toothy Subject!

ON a recent trip into the Southwest, one of our field editors, Ken Gutschick, became the proud owner of a genuine fossilized elephant tooth, which had been recovered from a Texas gravel pit. The molar or what-have-you (see cut) measures nearly one foot in its longest dimension and weighs about 10 lb. It was given to

Ken by the gravel plant operator, who claimed that several other teeth, bones, and whatever else elephants leave to posterity, were exhumed from the pit by a dragline. In the write-up of this plant in P&Q (August, 1954) it was boldly reported that the elephants which thundered over the Texas plains a geologically short time ago (a million or so years) were larger than their modern counterparts, the big ones reaching 14 ft. in height. If there is any doubt about this whopper of a claim, remember, these were *Texas* elephants.

In case you're wondering what has become of the prized paleontological specimen, Ken probably displays it to his neighbors (at two bits a head—children free). Other uses to which it may be put include wife's charm bracelet, anchor to hold back eager crawling baby, paper weight, door stop etc. Some day it may adorn the dentist's office wall to show that maybe man doesn't have it too bad, come extraction time. Pity the poor caveman dentist who may have had to tussle with these elephants and their sore gums.

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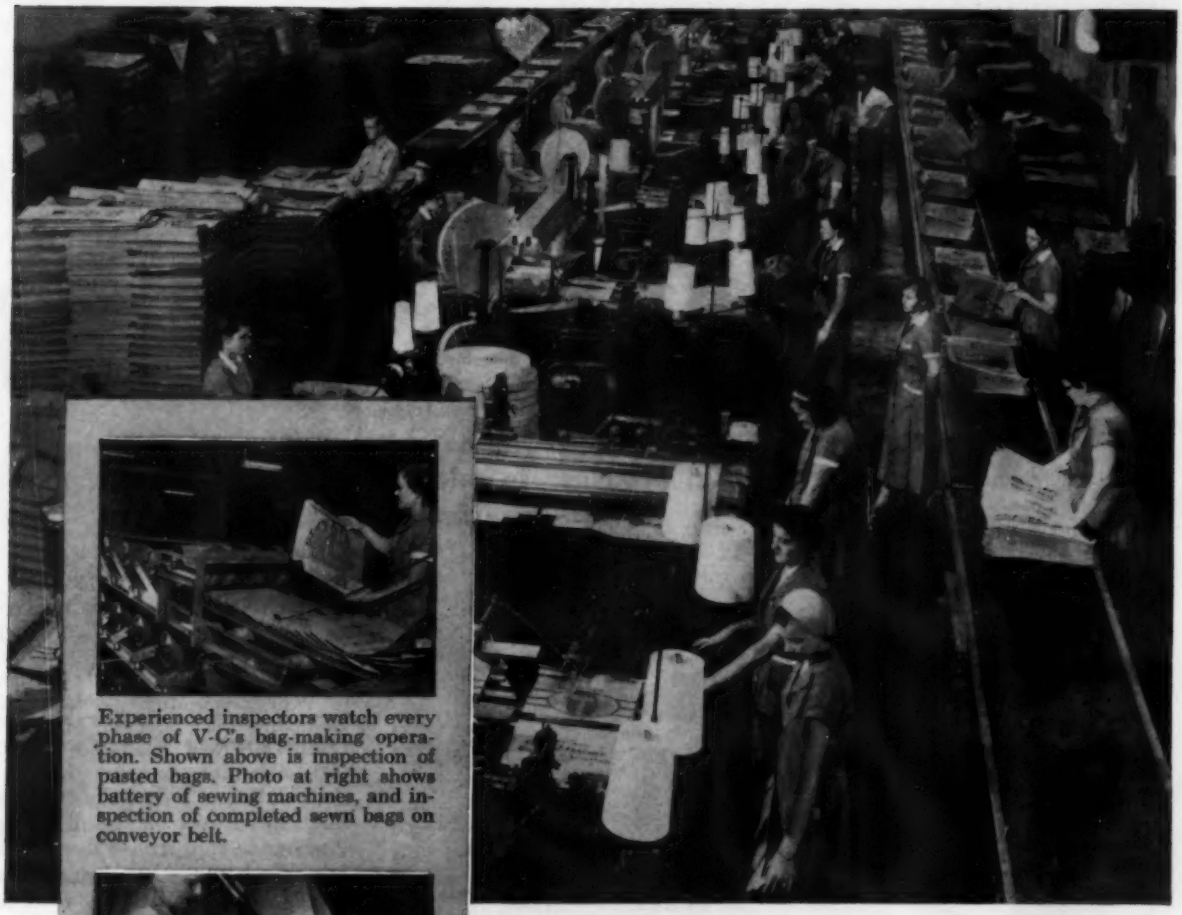

Experienced inspectors watch every phase of V-C's bag-making operation. Shown above is inspection of pasted bags. Photo at right shows battery of sewing machines, and inspection of completed sewn bags on conveyor belt.

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SHIELY

builds 600 T.P.H. Gravel Plant and Barge Yard at St. Paul

Depletion of gravel deposits at older St. Paul plant leads producer to relocate along Mississippi River

By KENNETH A. GUTSCHICK

View of the Grey Cloud Island gravel plant. The belt in the foreground leads to the primary scalping screen. Units in the background represent the washing and screening departments. At the far left are the sand screw classifiers.

another ON THE SPOT feature

RECOGNIZING the economic value of barge shipping of high-bulk, low-price commodities like sand and gravel, the J. L. Shiely Company, Inc., St. Paul, Minn., recently embarked on a major $2,000,000 expansion program involving the building of a river-site 600-t.p.h. sand and gravel plant and a huge distribution yard serving the St. Paul area. Both operations, which were started in March of this year, are situated along the Mississippi River, the barge terminal being located in the eastern part of St. Paul and the gravel plant on Grey Cloud Island some 12 miles downstream. Delivery from plant to yard is handled by a brand new fleet of 12 steel barges,

View of the dry-pit operation on Grey Cloud Island, showing (foreground) a 2½-cu. yd. shovel loading a 29-ton tractor-trailer and (background) a smaller shovel loading one of the smaller trailer units. The water body in the background is Balsam Lake, which is separated from the main channel of the Mississippi River by a narrow point of land.

The three Shiely brothers—Joe, Al, and Jim—on board their new towboat, which is named in their honor. Joe and Al are former presidents of the N.R.M.C.A. and N.S.G.A., respectively.

each carrying 500 tons of aggregate.

Other facets of the Shiely expansion program included the building of a new modern ready-mix plant about two blocks from the material yard, as well as the modernization of the firm's older ready-mix plant in St. Paul.[1] In addition the project required the dredging of a 2,500-ft. barge channel across a narrow point of land and a shallow stretch in the river in order to make the Grey Cloud plant accessible to barges.

The shift to the new gravel plant site was necessitated by the abandoning of the firm's older gravel plant in St. Paul (the Snelling Avenue location) due to the depletion of the gravel deposits there. This plant, which had been operating in a built-up residential-industrial section since 1925, was closed down and dismantled late in 1953. In the construction of the Grey Cloud plant, much of the equipment from the old plant was used. Like the older operation, the newer one is dry-pit.

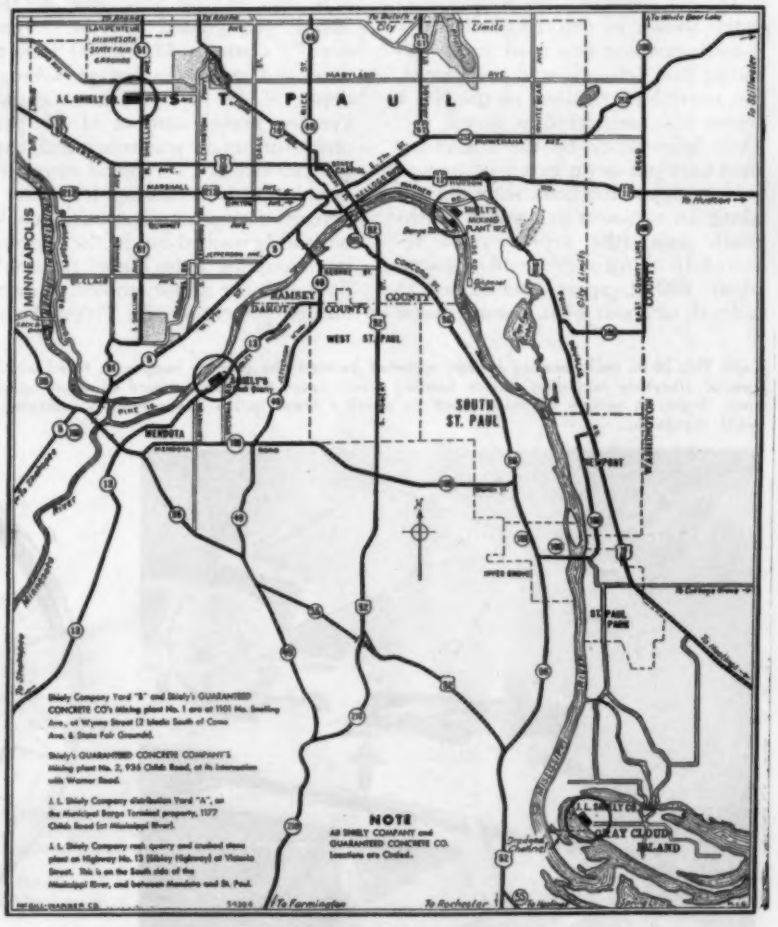
S. T. Harrison, Shiely chief engineer, and Frank H. Googins, superintendent of the new Grey Cloud Island gravel plant.

Relocating along the Mississippi River was the culmination of a ten-year dream of the Shiely brothers—Joe, Al, and Jim—to utilize water transportation in their operations. The Shiely company thus became the first of its kind to use barges in the St. Paul area; it is also believed to be the only gravel firm using inland waterways north of Kansas City and west of Chicago. Because barge transportation is relatively low in cost (amounting to only a few cents per ton of material hauled), the Grey Cloud Island site has a very strategic location with respect to the St. Paul building market. Based on the early success of Shiely's new integrated setup, additional barge yards on the upper Mississippi and Minnesota rivers are being planned.

[1]The new ready-mix plant is described in detail on page 209 of this issue.

A four-barge load of aggregates leaving the Grey Cloud Island plant for St. Paul. The cable line in the foreground serves as a guide for moving the barges along the dock during loading.

Proving The Deposit Consistent with the Shiely policy of doing a job thoroughly, the firm made very extensive studies of the Grey Cloud Island deposit before deciding to lease over 1,000 acres on the island and set up the new washing and screening plant. To prove to investors the feasibility of the proposed project, the company supplemented their preliminary investigations with a study made by E. J. Longyear Co., a mining engineering firm in Minneapolis. The accompanying exploratory map and cross-sections show: (1) the extent



Map showing the various Shiely operations (circled) in the St. Paul area.

A view of the primary hopper, which is charged by bottom-dump tractor-trailers. The belt conveyor leads to a pair of scalping screens.

to which auger holes and dragline and backhoe pits were made by both Shiely and the consulting firm, and (2) east-west and north-south cross-sections of the area showing the thickness and characteristic of both the overburden and the gravel deposit.

In determining the sand-gravel ratios shown in the cross-sections, a 4-mesh opening was used as the dividing line between sand and gravel, *i.e.*, everything retained on the No. 4 screen was considered as gravel, etc. Drill holes made by the consulting firm were put down by a 6-in. power-driven auger; the holes were aligned along an east-west axis and a north-south axis (the cross-sections referred to above correspond), spaced about 600 ft. apart, and drilled to a depth of about 44 ft. Samples were collected at intervals of 5 ft. or more, depending on the variations in the material penetrated. Samples were later studied in the laboratory in order to determine grain size and lithology.

As a result of the exploratory studies, it was estimated that the 127-acre site on the west side of the island (designated as the "West Area") contains 12,000,000 tons of sand and gravel having an average depth of 41 ft., with a weighted[2] average gravel content of 46 percent; further it was concluded that the gravel was a very good merchandisable grade possessing less than 3 percent clay and silt, which could be readily washed out in the processing. Coupling these highly favorable data with the minor amount of overburden present in the "West Area" (averaging 3 ft.), there was ample justification for developing the deposit.

The exploration also revealed large reserves of sand and gravel in the area adjoining the 127-acre site on the east; however, information was insufficient to permit estimation of tonnages and grade.

Geology The deposit at Grey Cloud Island is a part of a belt of glacial outwash material deposited at the retreating edge of the so-called Patrician ice lobe which invaded the area from the north and northeast. Meltwater from the ice front deposited the sand and gravel in horizontal and cross-bedded layers and in lenticular bodies; the particles are principally hard trap rock, granite, and dolomitic limestone, which had been brought down from the Lake Superior region. Following the original deposition, the gravels were probably reworked and further sorted to a certain extent by high water stages of the Mississippi River.

Resting on the gravel deposit, which ranges in thickness up to 45 ft. or more, is an irregular layer of dune sand varying from one to 25 ft. in thickness. (At the present pit site, the thickness is about 3 ft.)

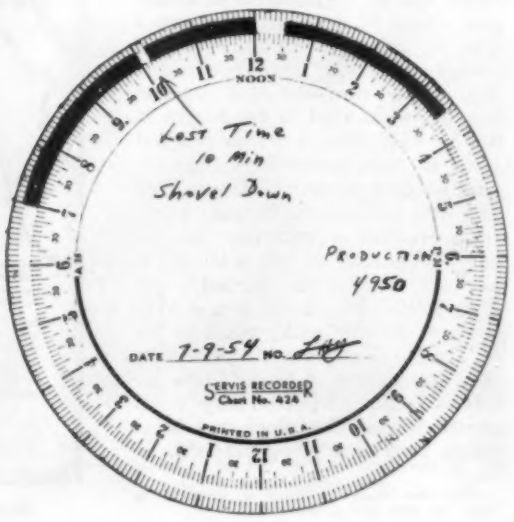
[2] The weighted gravel content was obtained in the following manner. From a study of samples from over 30 test holes, the average gravel content was determined at various depths. The averages were as follows:

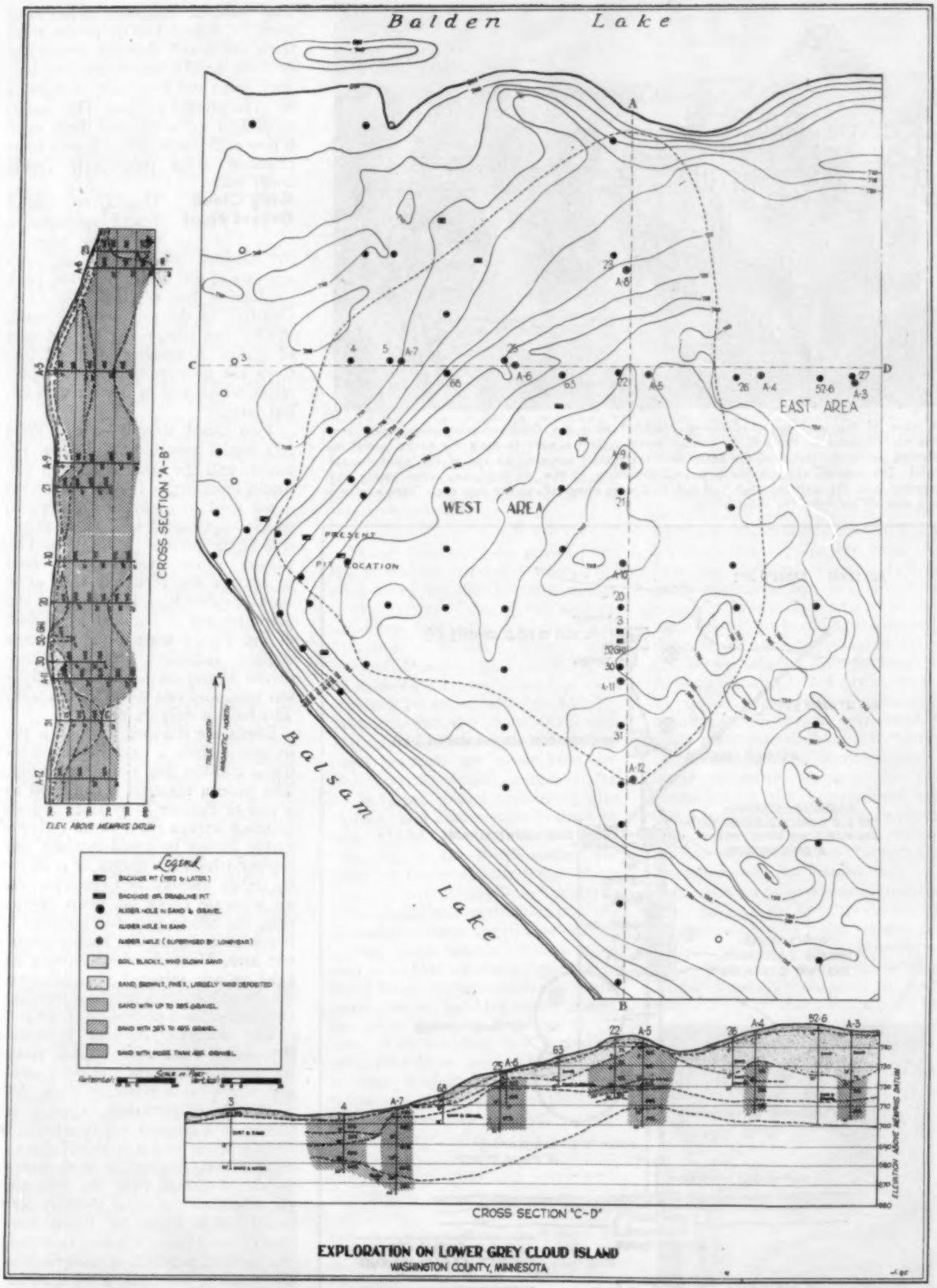
Depth (in ft.)	%
3 - 9	22
9 - 20	45
20 - 30	51
30 - 40	56
40 - 44	46

The average gravel content between depths of 3 and 44 ft. was then determined by:

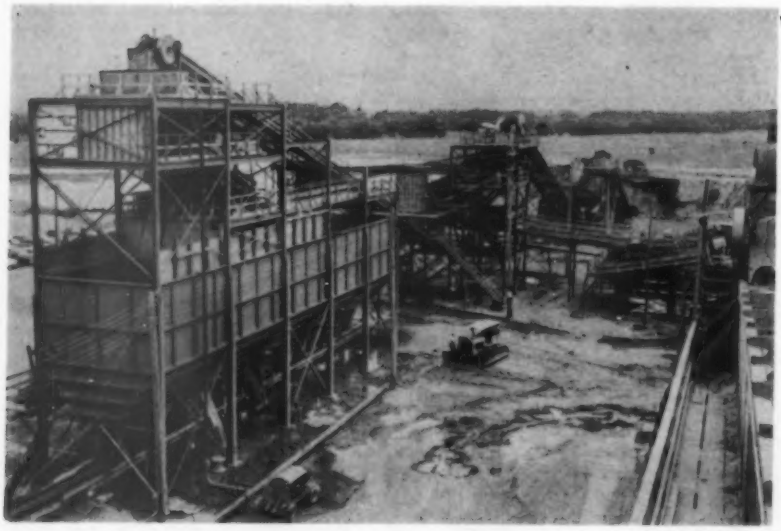
$$\frac{(6\times22)+(11\times45)+(10\times51)+(10\times56)+(4\times46)}{41} = \frac{1881}{41} = 46 \text{ percent, i.e., 41 ft. of deposit at 46 percent gravel.}$$

Left: This 30-in. reciprocating feeder, mounted beneath the primary hopper, is fitted with a special vibratory recording device (arrow) which keeps a graphic record of plant operation. Right: A sample graphic record on which a break in the line continuity indicates a plant shutdown.

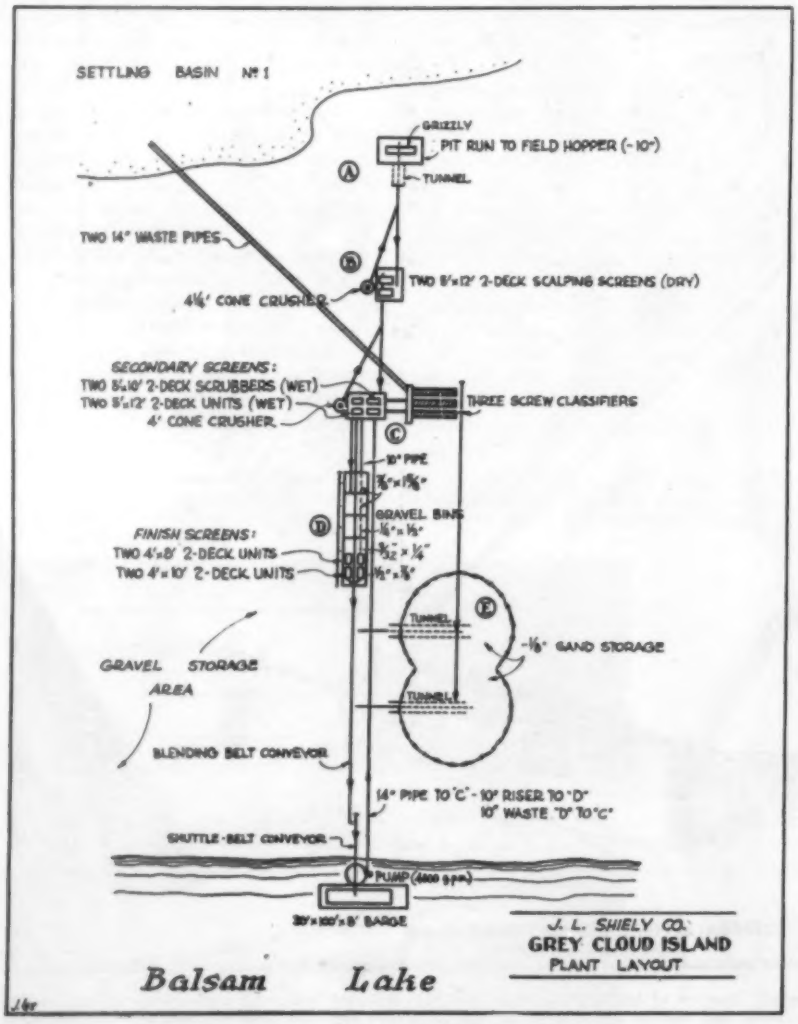




Exploration map of Grey Cloud Island showing (1) location of test drilling holes and (2) east-west and north-south cross-sections of the sand and gravel deposit. The latter show the lateral and vertical variation in the gravel deposit and dune sand overburden. Differentiation of the deposit is based on the sand-gravel ratio.



A view of the washing-and-screening plant, showing the finish-screening department and the bin structure on the left. A number signal system is used to keep the barge loader informed as to the status of the bins; note the signals mounted on top of the plant (upper left). The number of each bin is posted according to the bin level, i.e., when empty, the number is at the bottom; when half full, half way; when full, at the top, etc. These numbers are also visible from the plant office.



Plant layout of the Grey Cloud Island gravel plant.

This material, composed of fine sand particles, was picked up by the wind from the gravel deposits themselves or from nearby vegetation-free outwash areas and eventually re-deposited in its present position. The uppermost foot or so of this dune sand is now sufficiently rich in humus to be classified as a moderately fertile sandy loam.

Grey Cloud Gravel Plant The Grey Cloud Island operation is one of the finest in the industry, producing at an average rate of 600 t.p.h.; however, peak production has reached 750 t.p.h. One-half of the production is sand, the balance comprising various sizes of gravel. A number of novel features are incorporated in the operation, which will be described in detail later.

Two diesel shovels—one a P&H 955 model mounting a 2½-cu. yd. bucket and the other a Marion 450 model mounting a 1¼-cu. yd. bucket—are used to excavate the deposit, which approximates 42 ft. in thickness at the present pit location. The smaller of the shovels is also used to remove the relatively thin dune sand overburden. Haulage to the plant hopper is handled by a fleet of five Euclid bottom-dump tractor trailers, including three gasoline-driven 15-ton units, one diesel 22½-ton unit, and one diesel 29-ton unit. The haul is only ⅛ mile.

Loads are dumped through a 10-in. grizzly into a steel hopper having a 250-ton live storage capacity. The pit-run material is conveyed to a pair of Pioneer 5- by 12-ft. 2-deck scalping screens *via* a 30-in. reciprocating feeder mounted beneath the hopper which discharges to a 36-in. by 160-ft. inclined belt conveyor. As an accurate check on plant operation, the Shiely firm has installed a Servis recorder on the feeder eccentric arm. Plant shutdowns (even as brief as one minute) are indicated on the graph by a break in the line continuity. (See photos on p. 70.)

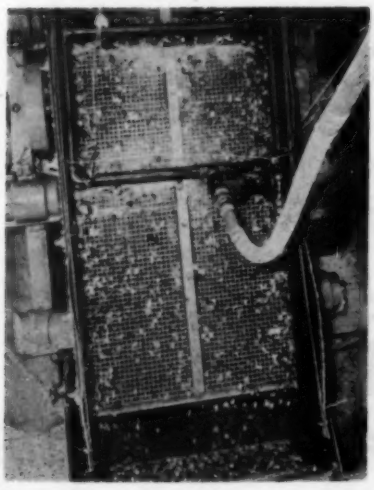
The scalping screens, operated dry, have 3-in. and 1⅝-in. cloth in the two decks, the top deck serving merely as a relieving deck. All material coarser than 1⅝-in. is chuted to a Symons 4¼-ft. standard cone crusher, which is V-belt driven by a 200-hp. motor; it is operated in closed circuit with the scalpers, the return to the main delivery belt being *via* a 24-in. by 100-ft. belt conveyor. Minus 1⅝-in. material, the desired product, is delivered to the washing department by a 36-in. by 150-ft. belt conveyor.

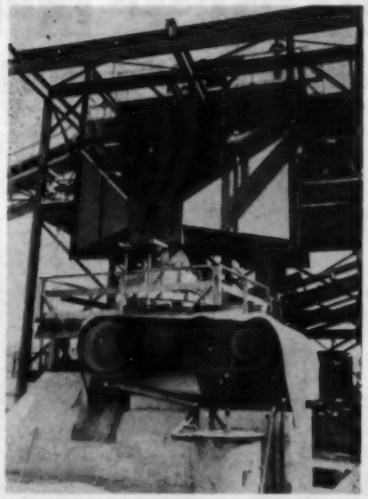
Because the gravel deposit contains only a minor amount of clay

and silt, all washing is performed on vibrating screens fitted with water-spray bars. The material is initially wetted in a single feed box ahead of the first two vibrating screens (at the discharge point of the 150-ft. conveyor mentioned above); two nozzles supply 750 g.p.m. of water at this point. Water for washing is obtained from the river, and is pumped at 4,000 g.p.m. to the plant by a Fairbanks Morse 10- by 12-in. centrifugal pump, driven by a 125-hp. motor.

The washing department consists of three separate sections—a battery of four double-deck secondary screens coupled with a cone crusher, which is operated in closed circuit with the screens; a second battery of four double-deck finish screens mounted over the gravel bins; and a sand classifying section consisting of three large-sized classifying-dewatering screws. In both screening sections the screens are mounted in tandem, rather than parallel, thus affecting a double screening. This tandem arrangement results in a well split and graded product; in addition, both the plant height and screen floor area are reduced.

Initial washing and sizing is performed on a pair of Tyler F-600 5- by 10-ft. 2-deck scrubber screens followed by a second pair of Tyler F-600 5- by 12-ft. 2-deck screens. All four units are fitted with ⅞-in. screen cloth on the top deck and ⅛-in. cloth on the bottom deck. Material off the top deck can either be finished product, coarse gravel (in which case it is belt conveyed to bin storage), or it can be recrushed to minus ⅞-in. in a Symons 4-ft. standard cone crusher and returned for further screening. The use of double screening and washing at this stage in the process insures thorough washing and efficient screening.





This 4¼-ft. cone crusher is operated in closed circuit with the scalping screens, reducing plus 1⅝-in. material to minus ⅞-in. Note the elaborate steel feedbox mounted above the crusher. This is one of several "stone boxes" used throughout the plant to reduce wear on chutes.

Minus ⅞-plus ⅛-in. gravel from the secondary screens is transferred on a 30-in. by 168-ft. belt conveyor to the battery of four finish screens, including first a pair of Stephens-Adamson 4- by 10-ft. 2-deck units followed by a pair of Tyler F-300 4- by 8-ft. 2-deck units. The first pair are each equipped with ½- and ¼-in. decks, and the second pair with ¼-in. and 3/32-in. decks. Three finished products are made here, including ¾-in. gravel (minus ⅞-plus ½ in.), pea gravel (minus ½ plus ¼-in.), and coarse sand (minus ¼ plus 3/32-in.). Fines through the bottom deck of the F-300 screens are piped to the screw classifiers, where they join with minus 8-mesh material through the bottom decks of the four secondary screens mentioned earlier.

The finish screens are mounted over a steel bin structure consisting of five 400-ton compartments; two compartments are used for coarse gravel, the other three for the finer gravel sizes. Two blending belt conveyors serve these bins—one a 30-in. by 400-ft. unit leading to a shuttle belt barge-loading conveyor and the other a short 24-in. belt conveyor extending the length of the bins which is used for truck loading. In addition, there are individual side truck-loading chutes.

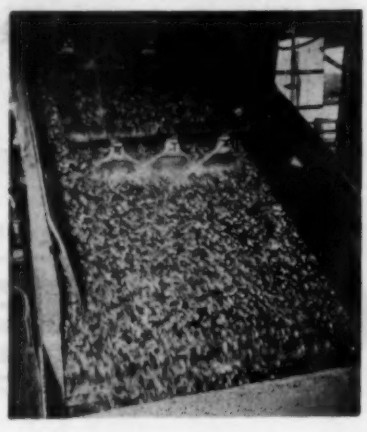
Left: A view from above one of the 5- by 12-ft. two-deck secondary screens. The top deck is fitted with wire cloth having ⅞-in. openings.

Right: One of the two 4- by 10-ft. double-deck finish screens. Plus ½-in. gravel is coming off the top deck.

When the plant was first built, the bins were unloaded entirely by means of a pair of travelling chutes and a travelling belt feeder, the three being mounted on rails beneath the bins. The belt feeder was equipped with a variable-speed drive and an adjustable gate, thereby permitting accurate blending. Presently these chutes are still in use, but only to a limited extent (on the small gravel size bins). For each of the large-gravel-size bins, the firm has recently installed a set of three rinsing chutes, thus effecting a final gravel-washing operation. This was required in order to counteract a mild abrasion problem occurring in the bins, which caused a thin clayey coating on the individual particles. The rinsing chutes are equipped with a water-spray bar and fine screen cloth. The fine material collects in a waste chute and passes out to the settling basin. (See photo on page 76.)

Another interesting feature of the Grey Cloud plant concerns the bin structure proper. In order to provide adequate drainage in the bins, the firm has installed a pair of 3-in. pipes extending the full length of each bin. These are pierced at the top with myriads of small-diameter drain holes, and surrounded by a fine screen which prevents clogging. A steel throat (2 ft. high by 18-by 24 in. in cross-section) extending above each discharge gate, with a baffle plate placed about 2 ft. above the throat opening, further reduces water discharge through the bin gates. Under this arrangement the water is deflected to the drain pipes, and consequently only a minor amount of water passes through the bin gates onto the loading belt.

In the sand-processing section, fines (minus ⅛ in.) produced on the secondary and finish screens are flumed or piped to a battery of three Wemco classifying-dewatering screws mounted parallel to each other. Two of the units are 60 in.



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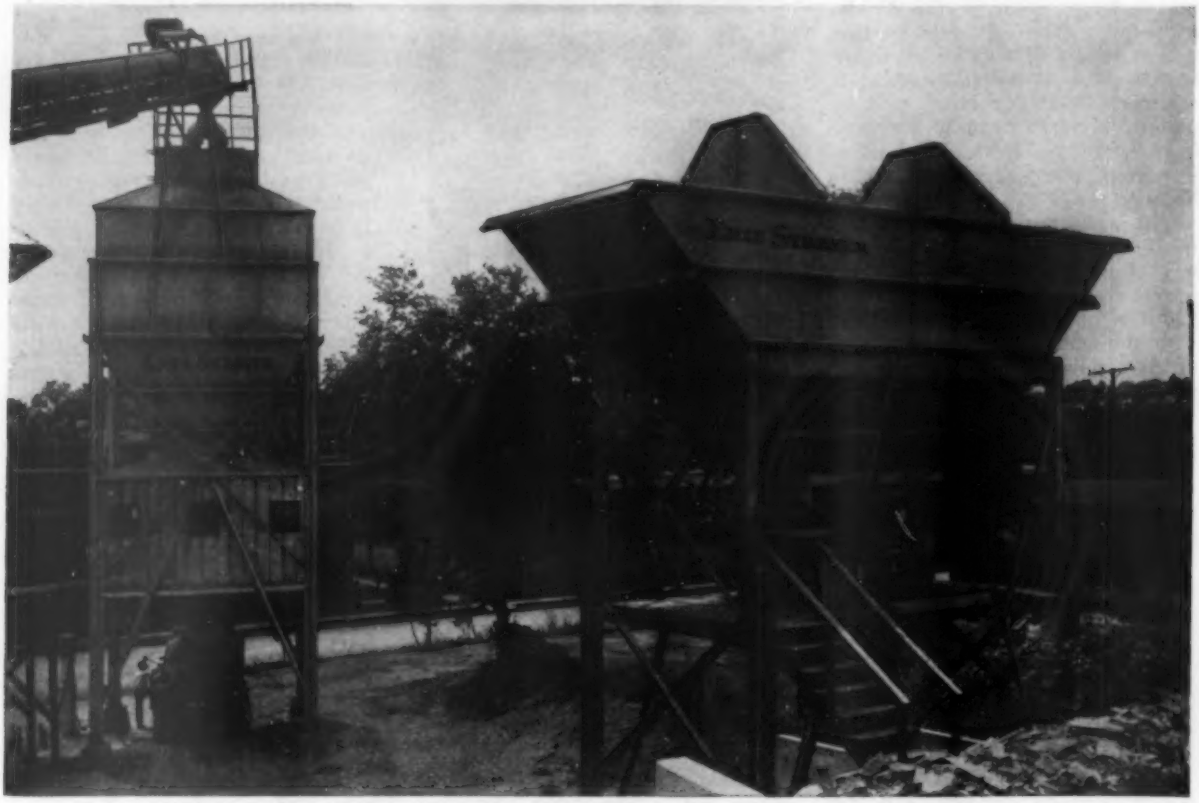

Felton Brothers two-stop truck mixer plant. Includes 79-cu. yd., 118-ton 3-compartment aggregate bin and a 2-compartment 1025-bbl., cement bin. Felton Brothers operate plants in South Boston and Finchley, Virginia. Equipment sold by Marion S. Branch, Lynchburg, Virginia.

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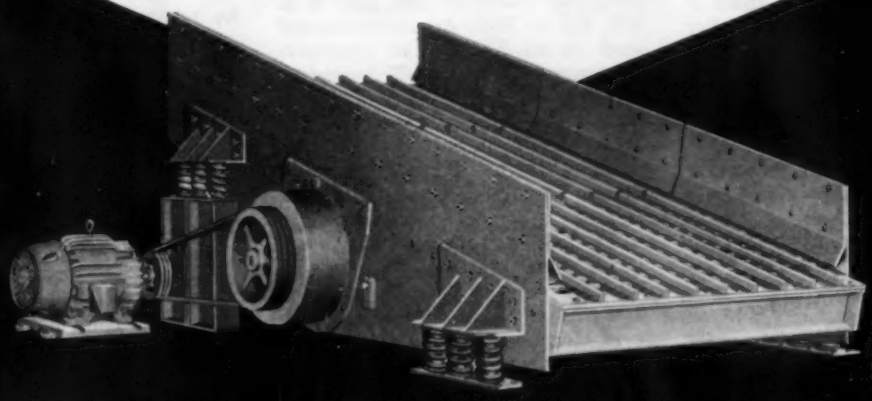
For the best in heavy-duty scalping you need every one of the BIG 4

1 GREAT STRENGTH Massive frame utilizes heavy-section ship channels and H-beam members. Welded deck is securely riveted to thick side plates. Stress-relieved construction easily withstands up to 40-in. boulders dropped from feeder.

2 HIGH CAPACITY Efficient vibrator mechanism permits screening extremely high capacities of sticky ore. Deck can be grizzly or perforated plate, furnished in welded carbon or cast abrasive-resistant steel.

3 EFFECTIVE SEPARATION All vibration is isolated from foundation by large, square-end helical springs and is concentrated in the live deck for thorough action of deepest bed.

4 TROUBLE-FREE OPERATION Automatic controls limit motion during acceleration and deceleration. Over-size, self-aligning roller bearings and hydraulic bearing removal device.



New LINK-BELT vibrating screen combines all the features essential to low-cost scalping

LINK-BELT designed and built this heavy-duty scalping screen to the specifications of the men who will use it. Efficient sizing action has been combined with the ruggedness necessary for severe service to produce a screen of the caliber required to do your job.

This new screen can improve your operation by effectively keeping fines out of your primary crushing circuit without being a bottleneck. Ask your Link-Belt representative for all the facts or write for Folder 2461.

Link-Belt heavy-duty scalping screen provides high-capacity sizing at this plant.

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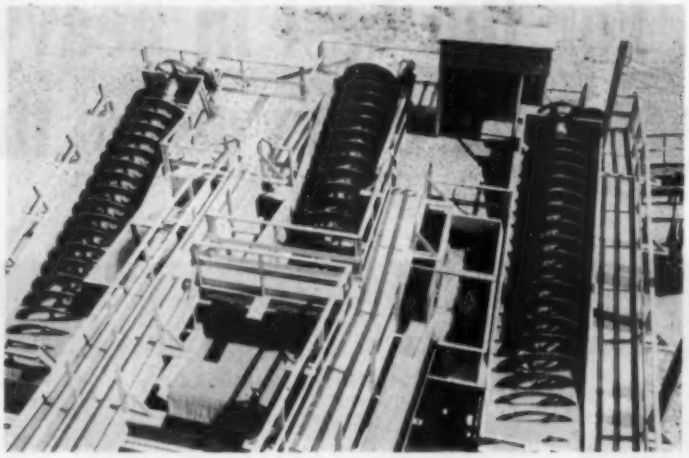
VIBRATING SCREENS

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 13.323-A

Rinsing chutes shown here are used for the gravel bins, performing the final washing operation. The material is discharged on a 400-ft. long blending belt conveyor leading to the barges. Note the two drain pipes issuing from the bin at the top of the picture.



Minus ⅛-in. sand is classified and dewatered in this trio of screw classifiers and fed to a stockpiling belt conveyor at the rate of about 300 t.p.h. The middle unit is 66 in. in diameter, the other two 60 in.

by 29 ft. in size and the third is 66 in. by 34 ft. in size; the smaller screws are driven by 10-hp. motors, the larger one by a 15-hp. motor. These units produce on the average of 300 t.p.h., although their capacity approximates 450 t.p.h.

The sand is delivered to storage by means of a 24-in. by 230-ft. belt conveyor which discharges either to the first stock pile or to a second 24-in. by 80-ft. belt conveyor serving the second stockpile. Two separate stockpiles, each having a capacity of about 1,500 tons, are maintained in order to allow one pile to drain at least for one day before loading. The general practice is to build up one stockpile on one day and then to load barges from it on the second day. In this manner one pile is built up while the other is used for barge loading.

Individual tunnel belt conveyors, 30 in. by 90 ft. in size, are used to reclaim the sand from each stockpile; the conveyors are housed in 8-ft. dia. by 70-ft. Armco corrugated steel tunnel liners. Both conveyors discharge to the main barge-loading conveyor issuing from the gravel bins. To produce concrete sand the firm blends minus 8-mesh material with the minus ¼-in. plus 3/32-in. material drawn from bin storage.

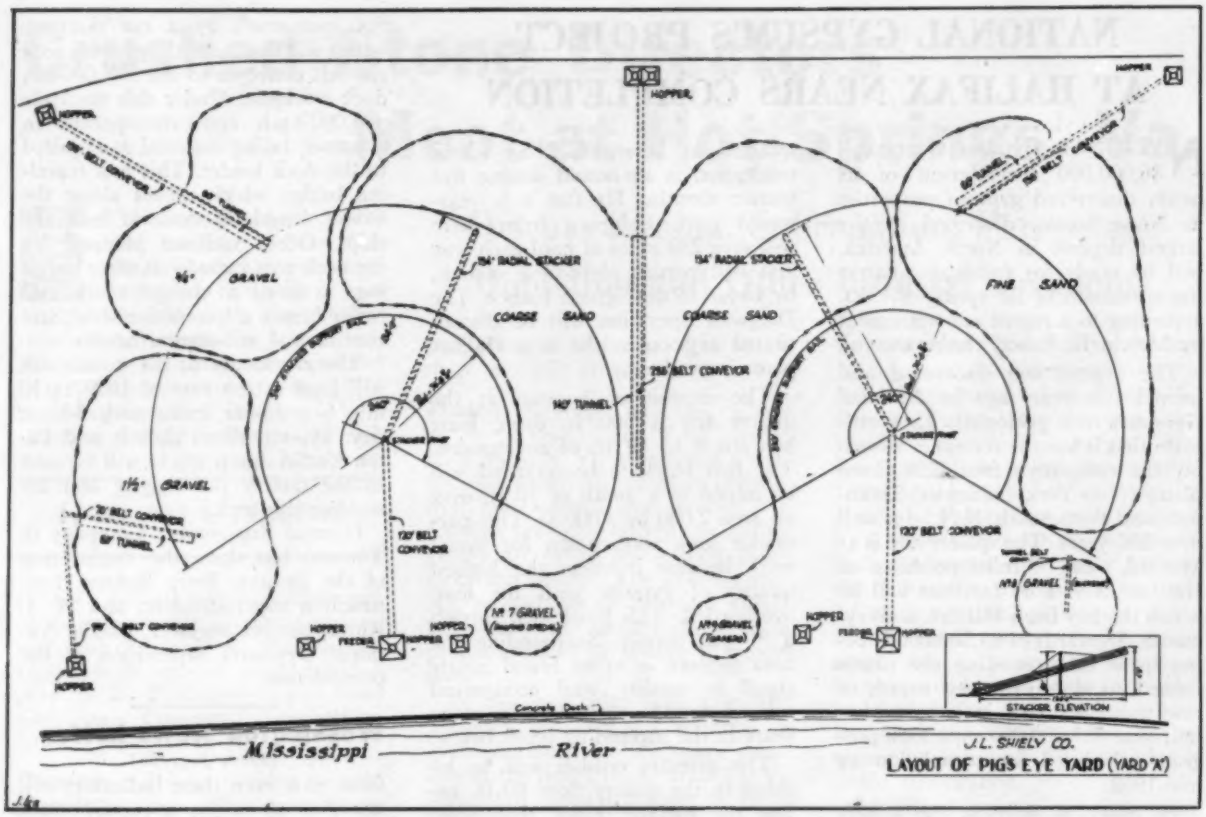
The dock at the gravel plant is 875 ft. long and built primarily of wooden piling clusters spaced about 100 ft. apart. The center cell, however, forming the support for the shuttle conveyor, is built of sheet steel piling backfilled with gravel and capped with a 12-in. concrete layer. Two ¾-in. cables spaced 3 ft. apart and fastened at the clusters run the length of the dock and serve to guide the barges. The barges are moved by means of American car pullers, one located at each end of the dock. The units are equipped with mechanical brakes which keep the holding cable taut while the pulling cable is operated.

The barges are loaded by a 30-in. by 66-ft. shuttle belt conveyor which extends from the 400-ft. delivery belt mentioned earlier; it is pushbutton-operated by the dock man. The conveyor has a back and forth travel of 25 ft., thereby spanning nearly the entire width of the barge. Since the shuttle conveyor is not pivoted, the barges are loaded by being progressively moved forward. The loading operation requires a relatively short time, varying from 30 to 45 minutes per barge.

A barge-loading scene at the gravel plant. The 500-ton barges are loaded in 30 to 45 minutes by the shuttle belt conveyor, which has a 25-ft. travel. The 10- by 12-in. pump supplying 4,000 g.p.m. to the washing plant is also shown here.

Barges The river fleet operated by the Shiely firm consists of 12 all-steel integrated barges and a twin-screw-propeller towboat. The barges, measuring 100 by 30 by 8 ft. in size, are the flush-deck type mounting a 3-ft. high cargo box. Each is designed with a rake end forward and a box end aft. In actual operation they are made up in pairs, with the box ends joined; this arrangement in effect makes an integrated 200-ft.-long unit.

The towboat, name *Joealjim* for the three Shiely brothers, measures 66 by 20 by 7 ft.; it is powered by two Caterpillar D375 270-hp. diesel



engines. The towboat is also equipped with a pair of Fairbanks-Morse 15-kw. generators. The barges and towboat were built by the St. Louis Shipbuilding and Steel Company at a cost of about $500,000.

In integrating the gravel plant with the barge terminal, the barge fleet is divided into three groups of four barges each. The general practice is to have one unit at Grey Cloud being loaded, one at the distribution yard being unloaded, and the third in transit over the 12-mile watercourse separating the two operations. Generally two units are loaded and unloaded daily, the loading requiring about three hours and the unloading about 5 hours.

Distribution Terminal The barge terminal, referred to as the Pig's Eye Yard, because of its proximity to Pig's Eye Lake, is one of the most modern in the industry; it is built on a 7-acre riverfront plot in the east central part of St. Paul. Presently 100,000 tons of aggregates are stored there. One of the principal functions of the yard is to stockpile sufficient material for winter operation when the gravel plant cannot operate.

The dock, made of concrete, is approximately 700 ft. long. Unloading is handled by two diesel cranes—one an American Lococrane and the other a Manitowoc 3500, both mounting 2½-cu. yd. buckets. An Allis-Chalmers TL-10 front-end loader, lowered into the barge by crane, is used for barge cleanup. (See cover photo.)

(*Continued on page* 134)

Two views at Shiely's modern barge terminal in St. Paul. Left: One of the two 134-ft. long radial stackers building up the sand stockpile. Sand is later reclaimed by means of a tunnel belt conveyor which discharges to a yard hopper. Right: The shipping office, showing the 50-ton capacity scale. The buttons to the right of the dial represent types of materials being weighed.

NATIONAL GYPSUM'S PROJECT AT HALIFAX NEARS COMPLETION

NATIONAL Gypsum Company's $6,000,000 development of its newly discovered gypsum properties in Nova Scotia, described as the largest deposit in North America, will be ready for full-scale quarrying operations by the spring of 1955, according to a recent announcement by Melvin H. Baker, chairman.

The deposit was discovered and proved two years ago by National Gypsum's own geologists. They estimate that it has the resources to supply the company's four East Coast plants (New York, Baltimore, Savannah, and Portsmouth, N.H.) for well over 200 years. The quarry site is at Milford, some 30 miles northeast of Halifax, N.S. Port facilities will be across the bay from Halifax, at Weymouth. Upwards of $3,500,000 is being spent on expanding the plants named, to absorb the new supply of raw material. This is a part of a four-year $37,000,000 expansion program scheduled for completion by mid-1958.

In order to develop the quarry site, a bridge was designed and is now under construction, spanning a stream which lies between the quarry and the main line of the Canadian National Railroad. Construction is also under way on a spur track and six-track yard, for handling and loading 70 cars, each of 80-ton capacity, daily. When loaded, these cars will be taken to the dock site some 28 miles away. In the past, the company has been depending upon its quarries at Dingwall, N.S., where navigation is ice-bound during five winter months. Halifax is a year-round port. Shipping from there will save 230 miles of haul each way and will permit night-time sailings, by virtue of the lighted harbor. The Dingwall operation will be discontinued as soon as the new Halifax plant is producing.

The deposit of gypsum at the quarry site is 300 ft. deep, lying beneath 8 to 40 ft. of overburden. The first block to be quarried will be mined to a depth of 70 ft. over an area 2,000 by 3,000 ft. This particular area was chosen for initial work because it offers the highest quality of gypsum with the least overburden. This block will furnish a 30-year supply. Surrounding the area gypsum is to be found nearly equal in quality, and economical mining could be carried on for many years in the succeeding levels below.

The primary crusher will be located in the quarry floor 80 ft. below the surface. From that point conveyors will take the rock to a screen and a secondary crusher at the surface, from there to a 10,000-ton surge pile, and on to the car loader. The secondary crusher can discharge either to the surge pile or directly into cars, as available, these cars being handled by a diesel locomotive within the company yard at the quarry.

At the Weymouth dock area the arriving cars will be handled from the spur track by a car dumper, which will discharge the gypsum rock *via* belt conveyor to the 175,000-ton dock stockpile. Under this stockpile a 4,000-t.p.h. conveyor operates in a tunnel, taking material as required to the dock loader. This is a traveling bridge which moves along the 646-ft. length of dock to load the ships. Other facilities planned for the dock area include an office building, a shop, a change room and boiler house, a locomotive shed, and control and sub-station houses.

The car loader at the quarry site will load at the rate of 1800 t.p.h. into two 35-car trains each 8-hour day. 2½-ton diesel shovels and 20-ton Euclid dump trucks will be used in the quarry for digging and for moving the rock.

General Engineering Company of Toronto has done the engineering of the project. Peter Badane, construction superintendent, and W. I. Ritter, project engineer, handle National Gypsum's supervision of the construction.

The railroad bridge leading to the National Gypsum Company's new quarrying site near Halifax, N.S.

Washington News Letter

(*From page* 56)

from now even these indicators will not give so bright a picture. And they will point to the fact that, because of the precarious state of business, wage increases are harder to secure. In many cases the employees have to come to the rescue of their hard pressed employers by voluntarily accepting wage cuts. The most drastic of these are in the automobile industry, where wage reductions were accepted at Willys and Studebaker. But these are by no means isolated cases.

Finally, they will argue that it is not enough to congratulate one's self upon the fact that the economy has held its own. American prosperity was not built on standing still. New capacity and new jobs must be created as fast as the population is increasing and faster if our standard of living is to continue to rise, and faster still if, in addition, we shall have to continue to make large and growing expenditures for defense.

Washington expects the battle to be joined on these bases. A hot campaign is expected by all.

Decatur Sand and Gravel Company, Decatur, Ill., and its Teamsters Union employees have agreed on terms of a new one-year contract which will include a 10-cent hourly wage increase and a new hospitalization plan. The new minimum rate for drivers and yardmen, under the new agreement, is $1.70 an hour.

Crushed Stone Directors Meet at Hot Springs, Va.

Discuss Zoning, Subrogation, Percentage Depletion and Other Industry Problems

another ON THE SPOT report

THE annual mid-year directors' meeting of the National Crushed Stone Association was held July 22 and 23, 1954, at The Homestead, Hot Springs, Va. It was well attended by producer members and by representatives of the board of the Manufacturers' Division. Many members brought their wives and families, and all took full advantage of the opportunity to combine pleasure with business at this famous resort. Both sessions were presided over by T. C. Cooke (Lynn Sand and Stone Company, Swampscott, Mass.), president of N.C.S.A.

By WALTER E. TRAUFFER

Coming Meetings It was decided to hold the 1955 midsummer board meeting again at The Homestead, Hot Springs, Va., on July 14 and 15. No decision was made on the location for the 1956 directors' meeting. (This question will be settled at a later meeting of the executive committee.) It was also decided that the 1957 annual convention will be held at the Hotel New Yorker, New York City. The 1955 annual convention, as previously announced, will be held at the Netherland Plaza Hotel, Cincinnati, Ohio, on February 7, 8, and 9; and the 1956 convention and machinery exposition are scheduled again at the Conrad Hilton Hotel, Chicago.

Percentage Depletion As chairman of the percentage depletion committee, Russell Rarey (Marble Cliff Quarries Co., Columbus, Ohio) reported on the present status. He said that he finds himself in the same position as at the annual convention in February. Then most of his long and carefully prepared report was nullified by the recent action of the House Ways and Means Committee. Now the recent activity in Washington again put him in a similar position.

Mr. Rarey reviewed the provisions of the House bill and said that the crushed stone industry should be generally satisfied with either the House or Senate version. This bill, he stated, is in many ways an improvement over that of 1951 and is more carefully drawn.

Zoning Sterling Tomkins (New York Trap Rock Corp., New York, N. Y.) mentioned a zoning case which his company recently won and warned that zoning is a growing problem, since many zoning groups are overstepping their provinces and powers. The laws on zoning, he said, are definite and should be used. The establishment of a property ahead of zoning is important.

In this particular case, said Mr. Tomkins, property was acquired in 1929 contiguous to the other property at the firm's Haverstraw, N. Y., plant, but separated from it by a road. This was far in advance of any zoning law. The local zoning body later put the company's entire property in a residential zone. The company claimed prior, non-conforming use, and the town then put the older property in an industrial zone, but left the newer property in the residential zone. When the case was tried, the judge held that a quarry is a progressive operation and that the entire property must be regarded as one unit, even though the newer part had not yet been worked. The town, he said, had no right to zone it.

Subrogation The report of the Subrogation Committee was presented by Warren C. Rowe (Rowe Contracting Co., Malden, Mass.) This subject, Mr. Rowe stated, is linked closely with vibration. A home owner can, by paying a few dollars more, extend his insurance to cover explosions, hail, windstorms, etc. Some persons then attempt to get this money back by claiming damage due to blasts in a nearby quarry. Rather than waste time in court, the insurance company will often settle for a few hundred dollars and then try to collect from the quarry owner or his insurance company. This practice is called subrogation.

Mr. Rowe pointed out that many quarry operators are vulnerable to claims of vibration damage as they carry no insurance against it. The better insurance companies, he said, have engineers in their employ who study industrial problems such as vibration. They advise customers on how to blast with safety and enable them to build up a defense in advance of suits. However, according to Mr. Rowe, most insurance companies have much to learn about such industrial problems; and both they and their customers can benefit greatly by co-operating. The explosive company experts and independ-

Members of the executive committee of the Manufacturers' Division. Seated, left to right: Irwin F. Deister (Deister Machine Co.); Chairman B. R. Maloney (E. I. duPont de Nemours & Co.); Secretary J. R. Boyd (N. C. S. A.) Standing, left to right: Wayne W. King (W. S. Tyler Co.); L. A. Eiben (Northern Blower Co.); R. D. Ketner (General Electric Co.). Messrs. Maloney, Deister, and Eiben represent the Division on the N. C. S. A. board of directors.

At lunch at the Casino. This group included Otho M. Graves (General Crushed Stone Co.; Mr. and Mrs. M. E. McLean and son (East St. Louis Stone Co.); J. E. Gray (N.C.S.A.); Mr. and Mrs. Harry A. Clark (Consumers Co.); Mr. and Mrs. J. R. Boyd (N.C.S.A.); John H. Odenbach (Dolomite Products Co., Inc.).

ent vibration engineers, he declared, have done wonders in improving blasting methods and in reducing vibration; but something must be done to bridge the gap between them and the insurance companies, who pay out to claimants as a good will gesture unjustifiably large sums which eventually come out of the customers' pockets.

This job, said Mr. Rowe, can be done by starting an educational program on a local level with the insurance adjusters, as well as by educating the various national groups and bodies. In some states he pointed out, insurance companies have set up arbitration boards to settle such subrogation cases. He also mentioned the frequency amplitude tables being considered in various states, which will provide a basis to work from. It will also do not harm, he added, to let the insurance companies know that the association and the industry are working on this problem.

Reports were also presented by the following: Harry A. Clark (Consumers Co., Chicago), chairman of the membership committee; by Otho M. Graves (General Crushed Stone Co., Easton, Pa.), chairman of the convention arrangements committee; by John F. Lane (Gall, Lane and Howe, Washington, D. C.) for the by-laws committee; and by B. R. Maloney (E. I. duPont de Nemours & Co., New York), chairman of the Manufacturers' Division.

Administrative Director J. R. Boyd, administrative director of N.C.S.A., began his report by pointing out some of the developments affecting the industry. Construction, he declared, is headed for a new record, judging from the volume for the first five months of the year. The Federal-Aid Highway Act of 1954 not only authorizes an all-time high appropriation of $875 million—52 percent over present annual authorizations—but it allocates these funds on a 60 percent federal, 40 percent state basis, instead of on a 50-50 basis as formerly. This, said Mr. Boyd, and President Eisenhower's recent proposal of a 10-year, $50 billion highway building program, is encouraging as it indicates a final recognition on the part of the executive branch of the Federal Government that there is a highway emergency, and that something specific should be done about it.

According to Mr. Boyd, even should the foreign situation get worse, no imposition of controls on materials, prices, wages, and salaries can be undertaken without affirmative action by Congress, for no legislative authority for the establish-

(Continued on page 85)

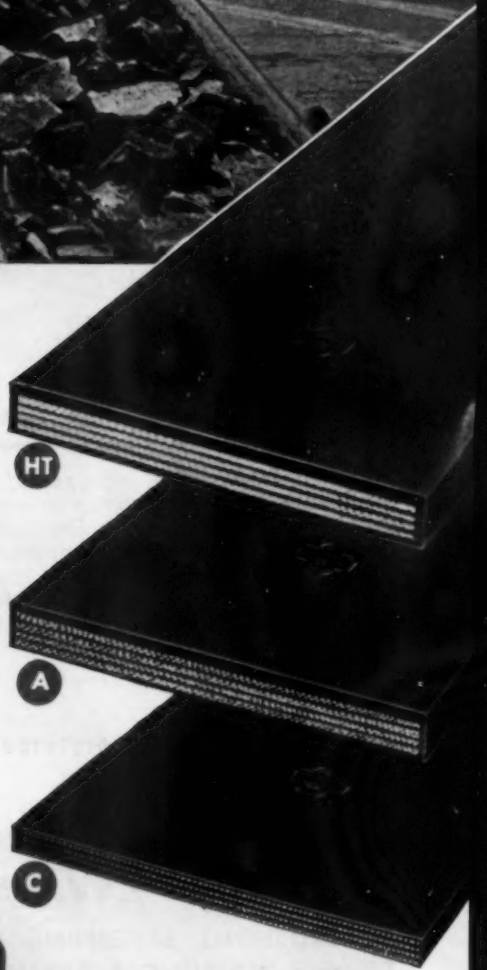
The weather was also good for golf. In this foursome, left to right, were Charles H. Krause (Columbia Quarry Co.); F. B. Thacher (Carbon Limestone Co.); Arthur F. Eggleston (John S. Lane & Son, Inc.); J. Reid Callanan Road Improvement Co.).

Co-operating with the photographer was Wayne W. King, trying to pose R. E. Sansom (American Limestone Co.); W. S. Weston Jr. (Weston & Brooker Co.); and James Savage (Buffalo Crushed Stone Corp.).

Thermoid Conveyor Belting cuts handling costs in quarries

There's a Thermoid Conveyor Belt designed to lower your handling costs on every quarry job. Here are three examples: **HT** For extremely abrasive materials such as granite, trap rock, flint rock, quartz ore; **A** For slag, lime rock, crushed stone and other highly abrasive materials; **C** For moderate abrasives such as sand, loam, soda, gravel.

Thermoid's exclusive impregnation process welds carcass and cover into an exceptionally strong, durable belt. Finest quality reinforcement and specially compounded rubber stocks assure long life . . . lower your handling costs per ton. There is a complete line of Thermoid Conveyor Belting, Hose and Multi-V Belts for every quarrying application. Call your Thermoid Distributor for information, or write direct.



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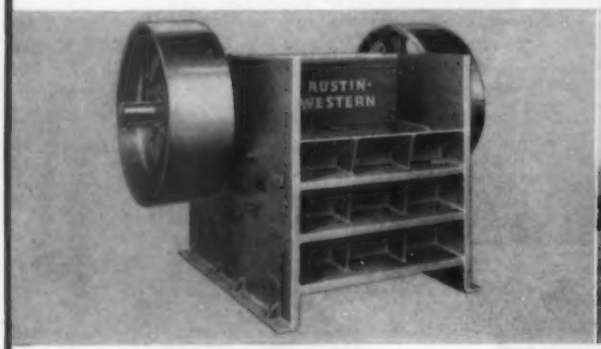
Compare jaw crushers...the guts of every plant... and you'll pick **AUSTIN-WESTERN!**

STUDY THIS FACTUAL COMPARISON OF JAW CRUSHERS BEFORE YOU BUY ANY PLANT

COMPARE...	A-W	Make "X"	Make "Y"	Make "Z"
Oversize shafts of Chrome Vanadium steel, the toughest and strongest material available.	Yes	No	No	No
Bearings located so center line of bearing proper comes within side plate. Thus side plate bears thrust of crushing load.	Yes	No	Yes	No
Machined steel toggle plate for absolute protection instead of cast iron.	Yes	No	No	No
All bearings of anti-friction self-aligning type.	Yes	Yes	Yes	No
All jaws and cheek plates made of manganese steel for maximum life.	Yes	Yes	No	Yes
Steel plate crusher frame for high strength without weight of cast steel frame.	Yes	No	Yes	No
Total	100%	33⅓%	50%	16⅔%



Austin-Western 1036
Roller Bearing Jaw Crusher

Austin-Western "101" Portable Crushing and Screening Plant with 1036 jaw crusher

The jaw crusher certainly is the *guts* of any crushing plant because it is the one unit that has to take constantly rough treatment. Also trouble-free operation of the jaw crusher is vital for profitable production. That's why it is so important for you to *compare* jaw crushers carefully before choosing from any crushing plants.

When you do, we are confident that factual evidence (see chart), will convince you that you will get better performance and longer life with an Austin-Western plant.

- *For more facts on any of the above points or copies of our new booklets, please write: Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio, or your nearby Austin-Western distributor.*

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protects critical areas, increases service life

1. Wear-Reducing Impeller Design—In Amsco pumps, the "Counter-Flow" principle embodies a unique impeller design. The impeller is funnel shaped on the entrance side.

A constant flow of clear water, under high pressure (suggested 10 psi in excess of dredge pump discharge pressures), is introduced between the impeller shrouds and side plates to eliminate abrasive-laden water from critical areas, thereby reducing wear. In addition, the sealing water aids in reducing localized wear on some parts of the shell.

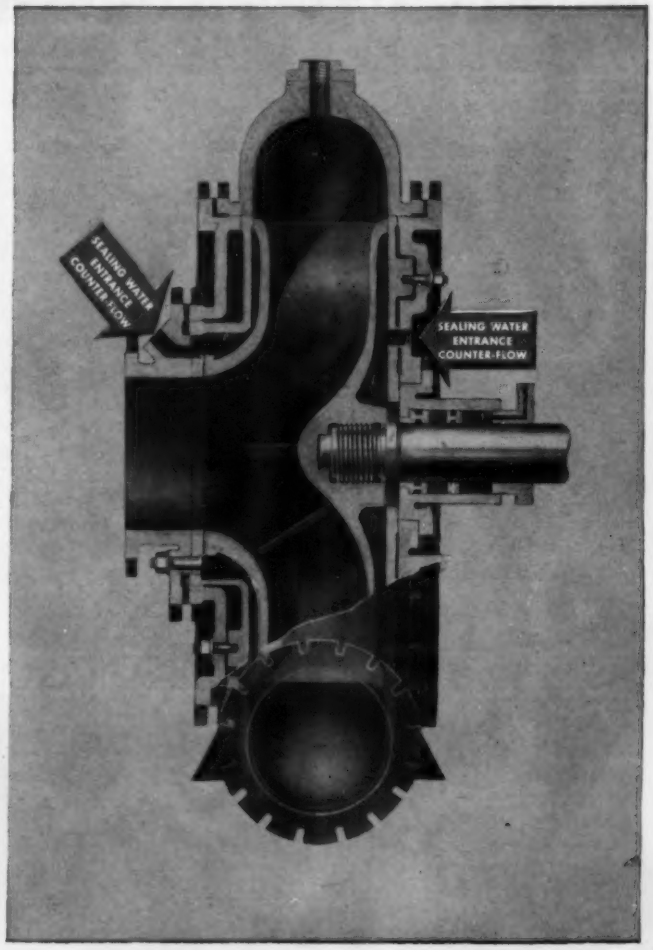
* * *

2. Less Internal Leakage—The "Counter-Flow" design of pump will give more sustained efficiency because there is less internal leakage on recirculation than in standard pumps.

* * *

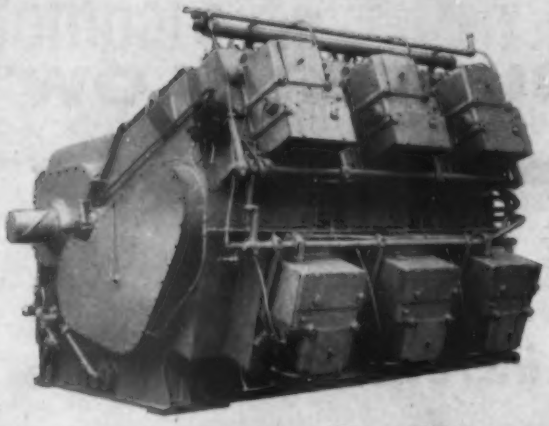
3. Reduced Resistance to Flow—An important advantage of the funnel-shaped impeller is found in its wide throat passages which reduce resistance to flow and thus substantially reduce power loss.

"Counter-Flow" is now an optional feature on all standard Amsco Dredge Pumps, from 6-inch through 20-inch. For additional information, write to the Amsco Division, Chicago Heights, Illinois.



AMERICAN Brake Shoe COMPANY

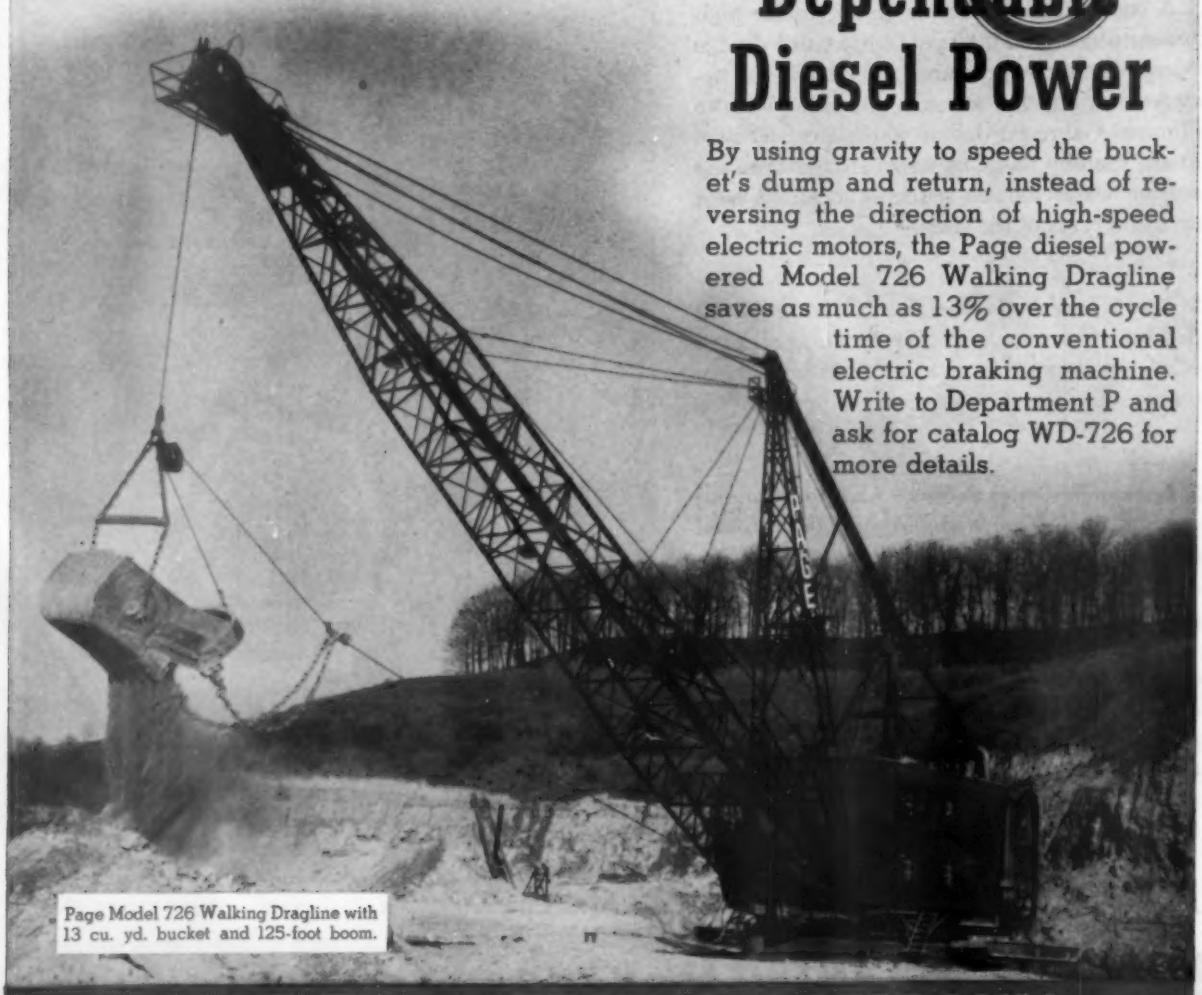
AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Ill.



Page Engineering Company custom builds the new V-type, Horizontal Diesel Engine, shown at left, in order to allow the use of larger, more economical, draglines of capacities up to 20 cu. yds. Like the time-tested Page inline diesel, the V-type takes advantage of medium speed, parts interchangeability and complete accessibility of all moving parts to insure economy of operation and low maintenance costs.

Reduce Cycle Time with—Page Dependable Diesel Power

By using gravity to speed the bucket's dump and return, instead of reversing the direction of high-speed electric motors, the Page diesel powered Model 726 Walking Dragline saves as much as 13% over the cycle time of the conventional electric braking machine. Write to Department P and ask for catalog WD-726 for more details.



Page Model 726 Walking Dragline with 13 cu. yd. bucket and 125-foot boom.

· PAGE ENGINEERING COMPANY ·

CLEARING POST OFFICE CHICAGO 38, ILLINOIS

Crushed Stone Directors

(*From page* 80)

ment of controls (other than for critical materials) now exists. In the event of an emergency after adjournment of Congress a special session would have to be called.

Mr. Boyd also commented on the effectiveness of the association's accident prevention program, but pointed out that all members are not participating fully. Since the convention in February, he said, the active membership has gone up four to 138, and the addition of two members to the Manufacturers' Division brings the total associate membership to 106. The financial condition of the association continues to be excellent.

Engineering Director A. T. Goldbeck, engineering director of N. C.S.A., in his report gave a resume of the wide variety of work done by his department during the past year both in the laboratory and in the field. He also mentioned two recent honors conferred on him. One was an honorary membership on Committee D-4 of A.S.T.M. on Road and Paving Materials. The other was the first Frank E. Richart Award presented by A.S.T.M. for "notable contributions to better highways and structures through sustained, painstaking research and standardization in materials." He also mentioned that he is now passing on to others much of the committee work in various technical organizations, adding that he is not accepting any more chairmanships of committees.

In the past year, said Mr. Goldbeck, 36 major research projects have been carried on in the laboratory, in addition to a number of continuing projects. This program included such projects as the following: soundness investigations on ledge rock to determine the location of sound and unsound ledges; special tests on concrete specimens for a secret use in connection with a defense project; a large project on the skid resistance of concrete as it is affected by various stone sands; a comparative test with a state highway department to check the operation of a new Los Angeles abrasion machine. He called special attention to three important projects dealing with alkali-aggregate reactivity, slipperiness of pavements, and flat and elongated pieces in aggregate, and described these in considerable detail.

Mr. Goldbeck also mentioned the revision in November, 1953, of Bulletin No. 11 on concrete proportioning which is now more useful than ever. It now contains a simple method of designing air-entrained concrete in which the amount of air in the concrete is varied with the size of coarse aggregate, with the idea of maintaining the air in the mortar constant at about 9 percent by volume. This method, he stated, was used with great success at the Idlewild Airport, and a very similar method was recently adopted by the A.C.I.

Also lunching at the Casino were Mr. and Mrs. George D. Lott Jr. (Palmetto Quarries Co.); Mr. and Mrs. Bruce G. Woolpert (Granite Rock Co.); and Walter E. Trauffer (Pit and Quarry).

Field Engineer In his report Joseph E. Gray, field engineer of N. C.S.A., gave a detailed accounting of his work over the past year. He mentioned the various state association and engineering society meetings attended, at most of which he presented papers or participated in discussions, and the fact that he is serving on several of their committees. For example, Mr. Gray is now a member of three committees of A.S.T.M. which have the task of writing specifications and methods of tests pertaining to aggregates. These committees are: C-9, Concrete and Concrete Aggregates; C-12, Mortar for Unit Masonry; and D-4, Road and Paving Materials.

Mr. Gray also described the field trips among member producers which form such an important part of his work. These trips, he said, not only make it possible to provide direct on-the-spot technical assistance to members but also provide an opportunity to give them and also nonmember producers a better understanding and acceptance of the work the association is doing. These calls also afford an opportunity to learn the opinions of members concerning the policies of the association with respect to industry problems.

Mr. Gray described a few examples of requests for technical assistance from members which illustrated the diverse nature of the problems encountered. These included investigations of alkali-aggregate reactivity, deleterious materials, pore structure, flat and elongated pieces, concrete design, workability of concrete, slipperiness of pavements, and many other subjects. Many of these tests, he said, proved the suitability for certain projects of stone which would otherwise have been rejected, and others showed producers how to eliminate certain objectionable features or characteristics of their products.

In conclusion Mr. Gray stated, "Crushed stone is a basic commodity, so the avenue of promotion must be primarily that of encouraging the proper use of this material through the application of sound engineering principles. This has always been the policy of this association, and in carrying out this policy through wider personal contacts, the prestige of this association is constantly being enhanced."

Medusa Portland Cement Company, Cleveland, Ohio, plans to undertake immediately a plant improvement program which, according to Ellery Sedgewick Jr., president, will cost "several million dollars". The program will include modernizing all plant facilities, and especially improving and enlarging the gray cement plant and limestone quarry at the company's York, Pa., operations.

FOOTE'S *Operation Lithium*

Plant at Sunbright, Va., recovers lithium equivalents from spodumene processed at Kings Mountain, N.C.

By WALTER E. TRAUFFER

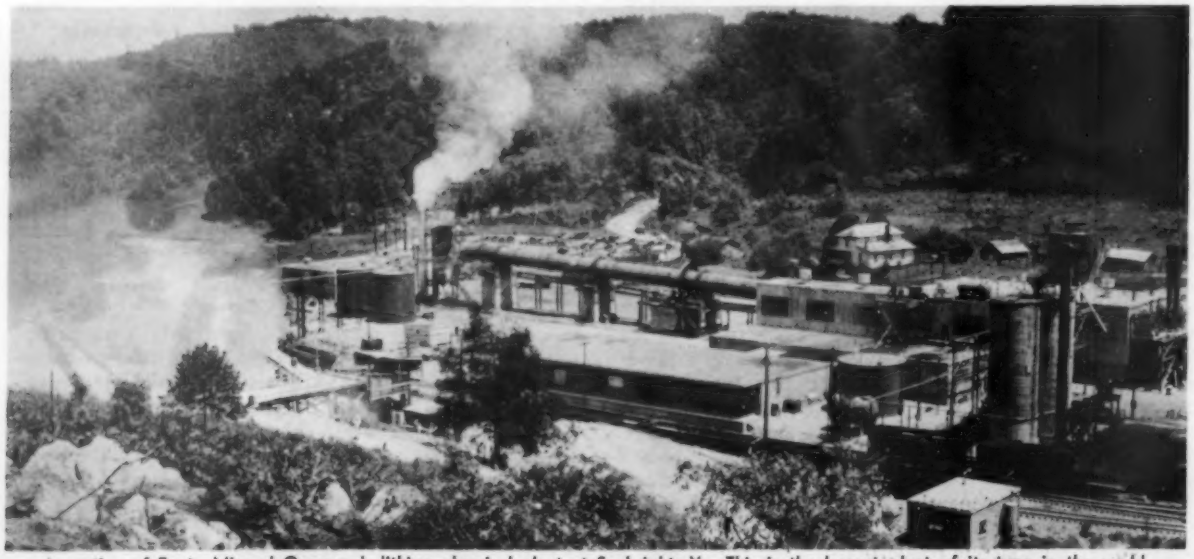
ON THE SPOT report

THE story of what is being accomplished in the production of lithium chemicals by the Foote Mineral Company should be an inspiration to those who feel that we are nearing the end of our natural resources. This company, already one of the country's leading producers and processors of industrial minerals, late in 1951 bought a spodumene plant at Kings Mountain, N. C., to supply its processing plant in Paoli, Pa. Almost immediately expansion was begun, increasing capacity from 300 to 1,000 tons daily. In June, 1953, a new $3,500,000 processing plant was completed at Sunbright, Va.; and this now receives spodumene by rail from Kings Mountain. Using limestone mined at Sunbright, various lithium equivalents are recovered. An important factor in the selection of this site was the fact that it is on the same branch of the Southern Ry. as the Kings Mountain plant.

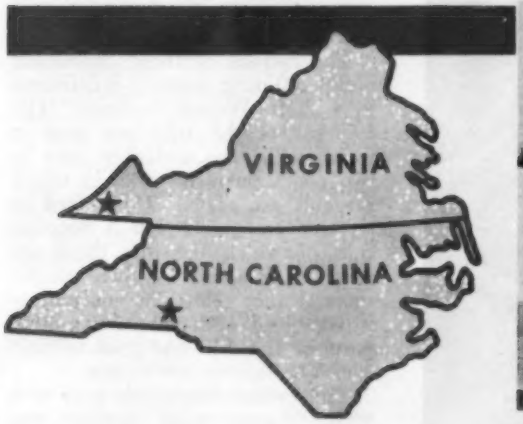
The growing demand again caught up with the supply, and the company is now doubling the capacity of both plants. The Sunbright plant is already the world's largest for the production of lithium chemicals, and the Kings Mountain deposit is the largest one known in the Western Hemisphere.

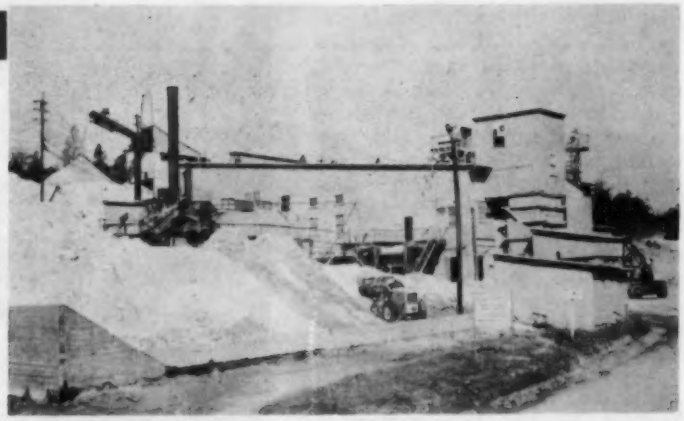
The lithium hydroxide produced at Sunbright goes to a wide variety of industries. It is an important ingredient in the manufacture of greases, ceramics, glass, porcelain enamels, air conditioning systems, alkaline-type electric storage batteries and many other items.

The processing circuit used at Sunbright is original with Foote Mineral Co. as applied to lithium. It was developed by the company's research and development laboratory at Berwyn, Pa., and tested in a large-scale pilot plant at Exton, Pa. As soon as the company's process for using spodumene economically as a raw material was perfected, the company, early in 1951, leased and in October of that year bought the Kings Mountain plant from Solvay Process Company. This plant had been built



A portion of Foote Mineral Company's lithium chemical plant at Sunbright, Va. This is the largest plant of its type in the world.





Lithium-bearing spodumene is piled on drainage pits outside the mill building at Foote's Kings Mountain, N.C., plant. This area contains the largest known deposits of lithium-rich spodumene in the Western Hemisphere.

under government subsidy to produce spodumene concentrates for war use and was operated from 1942 through 1944. The mill was altered, and a new crushing department was installed. Beginning in July, 1951, enough spodumene was produced to supply the company's semi-commercial plant at Exton, where further tests continued. From information developed in cooperation with the Asheville Minerals Research Laboratories the Kings Mountain plant was further altered and its capacity doubled early in 1953, and the new processing plant at Sunbright was designed; and it was opened in June, 1953. W. R. Hudspeth, now mill superintendent at Kings Mountain, helped to develop the process and came with it as assistant superintendent and chief chemist.

The entire project was so successful and the demand for lithium continued to grow so rapidly that doubling of the capacity of both plants was begun in December, 1953. This is being done without interference to production, and it is expected that both these expanded facilities will be in operation early in 1955.

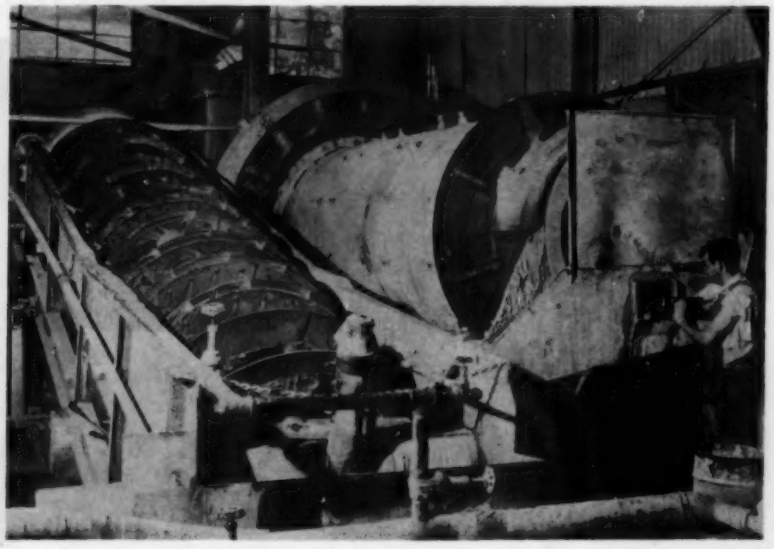
Expansion Plans The expansion program which will double the capacities of both the Kings Mountain and Sunbright plants is well under way and is expected to be completed early in 1955. At Kings Mountain all changes are being made behind the present crushing system and ahead of the rest of the flow. A new secondary crusher unit and a new tertiary crusher unit are now being installed. A heavy-media installation is being made which will process 1,200 tons in 24 hours (the plant operates 24 hrs. daily, 7 days weekly). This will make two gravity separations, a rejectable tail and a concentrate, with the middlings going to the existing flotation circuit. It is expected that the H.M.S. system will handle 25 to 35 percent of total output, and this will go through the grinding mill before joining the concentrates from other sources. Drum filters are being installed and all concentrates will pass through the drier before going to the new finished material storage silos. Additional office space and new laboratory control facilities have already been provided.

At Sunbright the present setup is being duplicated, with an additional kiln and related equipment, a new steam boiler, larger office facilities, etc. This work is being done by the Macdonald Engineering Company.

Kings Mountain Plant

The deposit at Kings Mountain, N. C., consists of a series of lithium-bearing pegmatite dikes 100 to 150 ft. thick striking northerly and dip-

Right: One of the 5- by 12-ft. rod mills operated in closed circuit with a 54-in. spiral classifier at the Kings Mountain plant.



Below: Miniature rod mill and spiral classifier in the plant at Kings Mountain.

ping 75 to 80 deg. to the west. These are in a mineralized zone roughly 3 mi. wide and 40 mi. long, extending from Lincolnton, N. C., to Gaffney, S. C. The area has been extensively mapped and prospected, and core drilling has proved the extent of the company's reserves. The deposits contain about 20 percent of the lithium aluminum silicate (spodumene), about 35 percent feldspar, 2 to 3 percent mica, and 40 to 45 percent silica. Overburden is now being removed from the largest of these dikes with a 1½-cu. yd. Bucyrus-Erie shovel and Euclid 10- and 15-ton trucks. The deposit is being worked in 20-ft. benches. As operations go deeper, the dike will lengthen, and the slope to the west makes it necessary to remove overburden over a large area in order to uncover future workings. Because of the topography it is not possible to follow customary procedures. It is planned to use berms 20 ft. wide for roadways with ramps between levels. This has the advantage also of leaving benches for future expansion of the quarry.

Drilling is done with Joy wagon drills using 1-in. round hollow steel and Timken tungsten carbide bits. Steel is used in 24-ft. lengths on the 20-ft. benches in order to eliminate toes. Sixty percent explosives and millisecond delay caps are used. Loading is now being done with ¾-cu. yd. Northwest shovel, but a 1¼-cu. yd. machine will be added when the quarry development has advanced sufficiently. A crane and a small dropball are now doing all secondary breaking in the quarry. Later a larger Osgood crane with a 10,000-lb. dropball will be used. Euclid 10- and 15-ton end-dump trucks are used for hauling to the plant.

At the plant the spodumene is

One of the pumps used in the flotation department at Kings Mountain.

dumped from the trucks into the hopper of the 26-in. Traylor gyratory crusher. The minus 4-in. product is carried on a belt conveyor to a 25-ton surge bin. An apron feeder discharges from the bin onto a conveyor to the 4- by 10-ft. Tyler screen which has a single deck with ½-in. slotted wire cloth. The oversize goes to an Allis-Chalmers Type R 636 Hydrocone crusher. The ½-in. crusher product joins the screen undersize on a stacker conveyor which discharges on a 3,000-ton stockpile.

Material is reclaimed from storage by a tunnel belt conveyor which feeds into two surge bins. Hardinge Feedometers control the discharge from the bins into the two 5- by 12-ft. Marcy rod mills. These are in closed circuit with 54-in. Wemco spiral classifiers. The plus 48-mesh sands go back to the original feed. From these mills through the flotation cells there are two duplicate circuits. The overflow from each classifier (minus 48-mesh) goes to the tank of a 5-in. Wilfley pump, which pumps it to a pair of 12-in. hydrocyclones of own design.

The cyclone overflow, containing minus 200-mesh material, is delivered to a 28-ft. Wemco thickener. The overflow of the thickener goes to waste, while the underflow goes to two conditioners in series in which reagents are added. These feed to six Denver No. 24 Sub A flotation cells of which the first three are roughers followed by three single-stage cleaner cells. The concentrate is combined with that from other parts of the mill and goes to storage. The tailings are wasted.

The cyclone underflow goes to a 48-in. Wemco spiral classifier, the sand from which goes to another set of two conditioners in series followed by a set of six flotation cells identical in every way to the two sets previously described. The concentrate from these cells goes to storage. The middlings are recirculated for retreatment back to the cyclone feed along with the overflow of the 54-in. classifier. The tailings go to waste.

The concentrate from the flotation cells averages over 80 percent spodumene, or better than 6 percent Li_2O. This compares to 7.3 percent in the pure crystal. A 2-in. Wilfley pump feeds the concentrate to a 16-in. screw dewaterer from which it is discharged into a concrete-floored storage bin and allowed to drain. A Hough Payloader is used to rehandle this material which goes through a 70-in. by 40-ft. Hardinge Ruggles-Cole rotary drier. Trucks haul the finished spodumene to a railroad siding for shipment to the Sunbright, Va., plant.

A complete laboratory is maintained at this plant for daily production control and for shipping samples. A Perkin-Elmer flame photometer is used for rapid and ac-

Left: In a series of flotation cells, lithium-bearing spodumene is separated from the gangue materials in the final processing step at the Kings Mountain plant. The spodumene is then dried and shipped to Foote's lithium chemical plant at Sunbright, where further processing removes the lithium equivalents from the spodumene.

Right: Miniature flotation cells in the pilot plant at Kings Mountain.

curate lithium determination. This does in 45 min. what the former wet method did in two days.

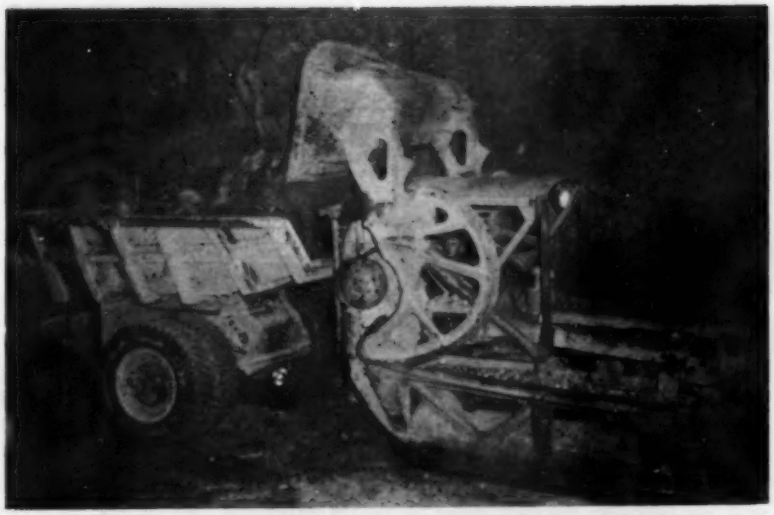
Installed in this plant are 32 Humphries spiral concentrators which were used for over a year to remove tin and columbite from the raw material. Rougher spiral concentrates were upgraded on a concentrating table to carry 45 percent cassiterite, 33 percent columbite, 14 percent pyrrhotite and 8 percent monazite.

Pilot Plant An interesting feature at the Kings Mountain plant is a complete pilot plant which operates continuously from the same raw material feed as the plant. This unit contains, on an exact scale, every major piece of equipment used in the main plant for processing pegmatite ore, making it possible to duplicate every phase of the process on a production basis with the aid of a slide rule. This pilot plant is being used by a research and development team as part of a long-range program to increase the recovery of spodumene and by-products from the pegmatite. Work is now being done on methods for reclaiming lithium equivalents from the tailings which are now being stored in a pond and also on more economical means for recovering spodumene from highly-weathered ore found near the surface of the mine.

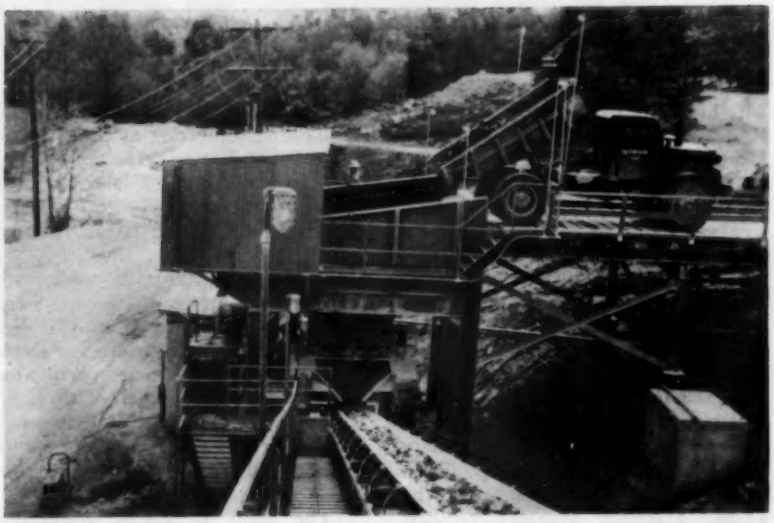
Long range plans include work on the recovery of associated minerals found in these pegmatite deposits, including columbium, tin, beryl, tantalum and feldspar. Experiments are also being conducted to find applications in ceramics and other industries for partly-processed ore from Kings Mountain.

Sunbright Plant

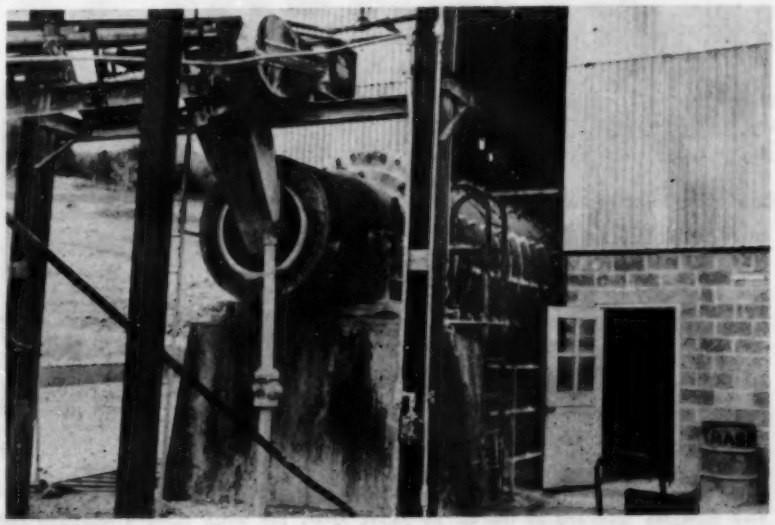
Limestone The limestone being mined at Sunbright is in the Ste. Genevieve formation of Mississippian age, and the main bed varies from 40 to 80 ft. in thickness. It averages 96 percent $CaCO_3$, is low in silica, and contains 2 to 3 percent magnesia. The bed dips from 8 to 10 deg. to the northeast and the entry was made in that direction. The first room development is being made about 500 ft. in from the entrance; and the rooms and pillars will run diagonal to the slope, resulting in a maximum of 8 percent grade for the trucks to climb. The early development will be done in two levels, using a drill jumbo and an Eimco loader on the upper level and a shovel and wagon drills on the lower level. When the rooms ap-



A tractor-shovel loader and a truck in the limestone mine at Sunbright.



A truck dumping a load of limestone into the primary crusher at Sunbright.



The 2-compartment ball mill which grinds limestone to 85 percent through 200-mesh.

proach the intended 80-ft. height, the face will be worked in three benches. The haulageways will be 30 ft. wide and the pillars 30 by 40 ft., but this may have to be adjusted to roof conditions.

At present the top one-third of the ore is being taken out, using two Worthington 3½-in. wagon drills and a V-cut pattern. Forty percent Gelex No. 2 is used with millisecond delays from 0 to 200.

At the present workings the limestone is near the surface, and occasional sand-filled caves are encountered, but no water. Operations will run out of these caves as they progress further back into the hill. At present, because of this condition and the fact that an uneven ledge averaging 18 in. thick is not well cemented to the one above it, the roof is being bolted for safety. This precaution will not be necessary after development has proceeded further. The roof bolts being used are of the expansion-shell type, 4 ft. long and 1⅜ in. in diameter. The holes are drilled with Ingersoll-Rand wagon drills using 1⅜-in. Liddicot throw-away bits; 1¾-in. bits are being used in the development work.

The mine is being ventilated by a 3000-c.f.m. Coppus fan and Dupont Ventube, supplementing natural ventilation. Later a larger permanent installation will be made.

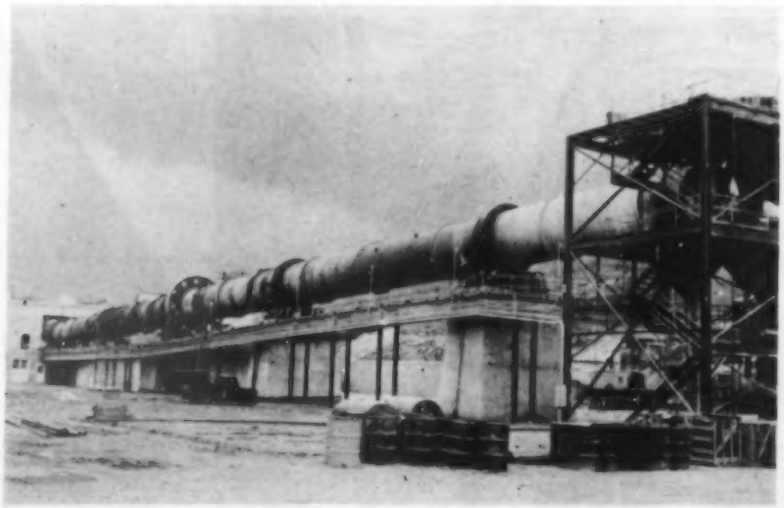
The Eimco tractor-shovel loader now loads into two 10-ton Euclid trucks with G.M.C. diesel engines. These haul the stone out of the mine and about 400 ft. to the primary crusher. The trucks dump direct from the edge of the bank into the 21-in. Telsmith gyratory crusher. The 4-in. product is carried on a

The direct-firing coal mill and the hopper (background).

30-in. by 114-ft. belt conveyor to the 4- by 12-ft. Tyler Ty-rock vibrating screen. This has 1½-in. cloth on its top deck and ½- by 4-in. slotted cloth on its bottom deck. The fines, containing some dirt at present, are now being wasted. The other two sizes, ½- to 4-in., go to a Pennsylvania Impactor which has a capacity of 290 t.p.h. and is driven by a 300-hp. motor.

A 30-in. by 190-ft. belt conveyor carries the stone to a 4,000-ton stockpile. About 1,500 tons is live storage recoverable through a single opening in an Armco corrugated metal reclaiming tunnel. A mechanical feeder is now used, but this will be replaced by a Merrick Feedometer which will record the volume of stone produced.

The 30-in. by 180-ft. reclaiming belt feeds the stone to a 6- by 18½-ft. Traylor 2-compartment ball mill which grinds to a fineness of 85 percent through 200 mesh. This has 3½- and 2-in. balls in the first compartment, and 1½- and ¾-in. balls in the second. This mill is driven by a 450-hp. G.E. synchronous motor. The resulting slurry, containing 65 percent solids, flows by gravity into a blending tank where it is mixed with the spodumene from the Kings Mountain plant.



View from the feed end of the 10- by 340-ft. rotary kiln which converts limestone and spodumene into lithium hydroxide.

Blending At Sunbright the spodumene is unloaded from the closed hopper cars and carried by belt conveyor and bucket elevator to two storage silos. Weighing feeders discharge the spodumene from the silos into the blending tank with the limestone slurry in calculated proportions. Mixing is done by a mechanical agitator, and water is added to the stiff (68 percent solids) slurry so it can be pumped. An Allen-Sherman-Hoff 4-in. Hydroseal pump feeds the slurry into two large storage tanks which are equipped with Dorr mechanical and air agitators.

Calcining A ferris-wheel feeder serves the 10- by 340-ft. Allis-Chalmers rotary kiln. This is fired by a Babcock & Wilcox direct-firing coal mill and has a New York Blower No. 490 draft fan. Operations are controlled from a completely-equipped board with all necessary instruments, including a Leeds-Northrup Speedomax, an optical pyrometer, etc.

Three reactions take place in the kiln: 1—evaporation of the water; 2—calcination of the limestone; 3—sintering. In the kiln a chemical reaction fuses and replaces the materials and changes their form so that the lithium, when later quenched with water, becomes solubilized as lithium hydroxide.

Processing The product of the kiln, in the form of round pellets averaging 1 in. in diameter, is discharged to the scoop feeder of a Traylor 6- by 12-ft. ball mill. The liquor from the thickener system is added in the mill. This is the quenching action where the lithium starts to leach. The slurry is discharged from the mill to a Dorr rake classifier from which the overflow passes to the primary digest system which carries the leaching action toward completion. The underflow from the classifiers is returned to the sinter mill and reground.

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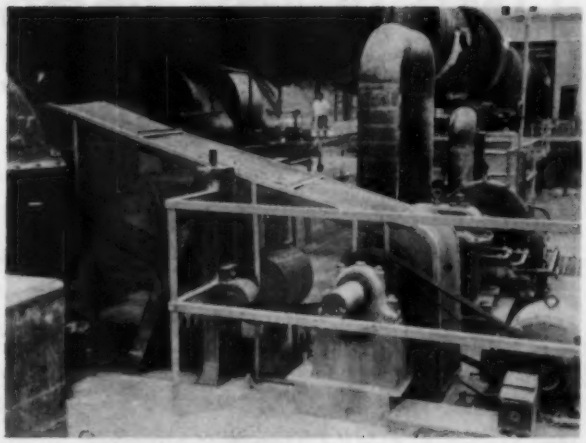
tanks with Dorr mud pumps. The mud is pumped through a secondary digest system which extracts all possible soluble lithium.

There is a 6-stage thickener system with counter-current washing. The secondary digesting is done after the third stage of thickening, and the sludge is fed to the 4th stage of thickening and on through to the tailings which are pumped to the sludge waste area.

The strong liquor from the first thickener goes to a triple-effect evaporator where it is concentrated until the lithium crystalizes out as lithium hydroxide monohydrate. A Bird centrifuge then spins out the finished product, getting about 70 percent of the lithium. Further evaporation recovers most of the other 30 percent.

Two Babcock & Wilcox 30,000 lb. per hr. coal-fired boilers supply 145-lb. steam for driving the kiln and for process. The kiln is driven by a 125-hp. Worthington steam turbine through Texrope, a Falk speed reducer and gears. This drive has been very satisfactory in every way and very easy to control. The kiln is operated at 55 r.p.h., but has a range from 10 to 80 r.p.h. An Allis-Chalmers gasoline engine is used as an auxiliary.



A 125-hp. steam turbine is used to drive the kiln through V-belts and gear reducers. Two coal-fired boilers supply 145 p.s.i. steam for the turbine.

The 15-lb. exhaust steam from the turbine is supplemented and is used for evaporation, digesting at the thickeners, etc.

Miscellaneous The main office of the Foote Mineral Co. is at 18 W. Chelten Ave., Philadelphia 44, Pa. Officers are: C. H. Chambers, president; L. G. Bliss, vice president in charge of sales; Felix B. Shay, vice president in charge of production; S. C. Ogburn, Jr., vice president in charge of research and development; E. G. Enck, secretary; J. Gates, treasurer. Brody Crawford is chief engineer and W. B. Towner is general superintendent.

The staff at the Kings Mountain plant is headed by Jim Castle, plant manager. Wm. Hudspeth is mill superintendent and E. Gates is engineer. At the Sunbright, Va., plant O. M. Wicken is plant manager; E. A. Remesch, plant superintendent; Ted Evans, mine superintendent; Geo. Copeland, plant engineer; and Geo. Giles, master mechanic.

Annual Sales, Profits Higher For Major Cement Makers

Statistics of most cement manufacturers for the last year show that sales and net earnings in this industry are continuing high, in most cases passing the figures for the previous 12-month period.

The sales of the Hercules Cement Corporation of Philadelphia, rose from $7,291,793 for the year ended March 31, 1953, to $9,110,540 in the same period of 1954. Net income rose from $537,489, or $3.34 a share in 1953, to $808,953, or $5.03 a share in 1954, according to D. S. McBride, president of the firm.

Manitowoc Portland Cement Company of Manitowoc, Wis., gives its net profit for a 12-month period ending March 31, 1954, as $1,993,343, compared to $1,195,153 for the same period of the previous year. Net sales amounted to $23,164,167 in 1954, compared to $18,042,829 for the year 1953. Net profit per share was $7.21 for 1954, and $4.32 per share in 1953.

Spokane Portland Cement Company had a net income for 1953 of $135,365, according to G. M. Bell, president, in the annual report just released. This compares with $85,-615, net income for 1952. Yearly sales on portland cement products amounted to $2,123,703, and $80,054 on limestone products, while the corresponding figures for the preceding year were $1,997,736 and $92,950, respectively.

Canada Cement Company, Ltd., has reported that production and sales were up 19 percent in 1953 fiscal year, and net profit showed sharp 34.9 percent gain at $5,454,965, equal to $6.97 per share, as against $4.62 for the previous year.

Permanente Cement Company of Oakland, Calif., has record sales and earnings in 1953, Henry J. Kaiser, president, announced in the annual report. Earnings for the year ended January 31 totaled $4,311,260, or $3.08 a share, compared with $4,165,116, or $2.97 a share for the previous year.

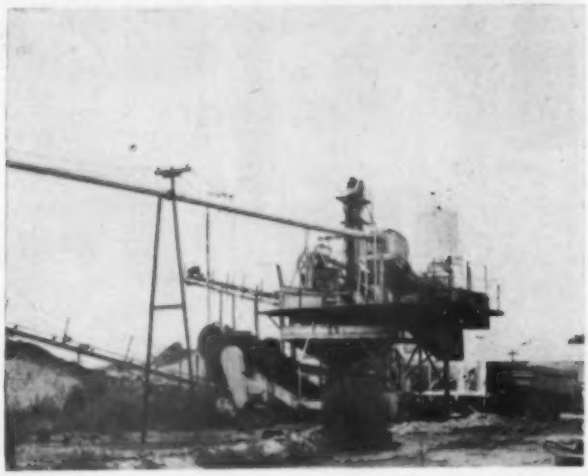
Quarterly reports (January through March, 1954) also showed a continuation of the current high levels in sales and profits. A quarterly report released by The Halliburton Oil Well Cementing Company and subsidiaries gives the net profit up to March 31 as $3,210,359, compared with $2,113,716 for the same period in 1953. Sales and services for the 1954 quarter were $29,015,040, while the figure for 1953 was $25,512,961.

Lone Star Cement Corporation of N. Y., reported for the quarter ended March 31 a net profit after income taxes of $2,318,796 compared with $1,713,717 for the same period of the previous year. Sales for the 1954 quarter amounted to $17,449,967, while the corresponding figure for 1953 was $16,826,393.

The Chanute, Kans., plant of Ash Grove Lime and Portland Cement Company, Kansas City, Mo., on June 3 was presented with an award recognizing the second cycle of 1,000 days of operation without a lost-time accident. The record of 1,400,000 man-hours of safe work since August 29, 1951, earned for the company an addition to its safety trophy, and renewed membership in the "1,000-Day Club", an honorary safety organization sponsored by the Portland Cement Association.

At the annual meeting of United Asbestos Corporation Limited, at Montreal, Que., A. B. Davidson, president, told shareholders that work on the Black Lake draining project was now under way. The work is being carried out by The American Smelting & Refining Company at a cost of $20,000,000. United Asbestos will receive 60 percent of the profits and American Smelting 40 percent.

LIME PUTTY PRODUCER DREDGES OWN SAND



The processing plant of the Hard Materials Company near Sacramento, Calif., is simple, but it has a high capacity. Seen in this picture are the pipeline from the dredge (terminating at the gravity screen), the hydro-separator, and one of the sand dredges.

another ON THE SPOT report

SINCE May, 1951, when operations began, the Hard Materials Co. has been one of the major producers and suppliers of plaster and mason's sands in Sacramento, Calif. In addition to the sale of sand as a commodity, the concern also operates a lime-putty department in conjunction with the sand plant and markets considerable sand in the form of ready-mixed mortar.

The plant is located on the south levee of the American River and the sand is dredged by suction from the river's bed. The dredge itself consists of two 8- by 30-ft. parallel steel pontoons which support the equipment and the superstructure, the 40-ft. suction line dropping between the pontoons. The intake end is barred to reject any coarse material, although little is encountered except for occasional streaks of pea-gravel.

The Pekor 8- by 10-in. dredge pump is driven by a G.E. 100-hp. motor and the 10-in. pipe-line, running a distance of nearly 2,000 ft. from the dredge to the shore plant, is made up of Armco spiral-welded steel pipe sections fitted with flexible sleeve joints.

Plant capacity is nearly 150 t.p.h., the pipe-line first discharging over a stationary screen to reject any plus No. 8-mesh pebbles. The oversize has been trucked away to waste as it accumulates, but block-plant operators could provide an outlet for much of the coarse fraction, and the company plans shortly to re-screen these rejects to supply this demand.

All the sand passing the No. 8 gravity screen is flumed to a drag-type classifier which operates in a tub with low weirs to effect thorough washing. The dewatered product is finished plaster sand in the No. 8 to No. 100-mesh range and a 16-in. by 60-ft. stacker conveyor builds up a storage pile for drainage.

Overflow from the drag is further processed in a Wemco 14-ft. diameter hydro-separator, followed by a dewatering drag with a large pool area. This finer product, running about minus No. 20 plus No. 150-mesh, is stored separately for drainage by a 16-in. by 80-ft. stacking belt. It is sold largely as engine sand and for seal-coat fines.

A 6-ft. tunnel beneath the two piles is used to recover either of the sands for shipment, or to blend them as is the case in the preparation of ready-mixed mortar. The tunnel belt is 175 ft. long on centers and delivers to the boot of the elevator which raises the material to the sand-loading bins and the mortar mixer.

The lime-putty department, designed and built by Ray Finch, one of the owners, incorporates three separate steel units—a mixing-and-slaking tank and two storage silos with a total capacity of 23,000 gal. The putty, marketed under the trade-name "Nu-Hi," is packed in 30-gal. drums for delivery to the trade. According to Mr. Finch, emphasis has been on the development of a fatter, more plastic putty than is ordinarily available. As a result, he reports, the product regularly tests 700 or higher on the plasticimeter, while most commercial putties are in the relative plasticity range of 500 to 600.

A pug-mill mixer is integral with the truck-loading sand bins for preparing ready-mixed mortar; Hardinge constant-weight feeders proportion the ingredients.

Barrett Powell is president of the company, Mr. Finch is vice-president, and Neil Osborn is secretary-treasurer.

The crushed stone quarry of the France Stone Company, of Toledo, Ohio, located at Spencer, Ind., has ceased production after 20 years of operation. Stone can no longer be quarried economically to meet state specifications.

The truck-loading bins and the mortar mixer, with putty tanks at the right.

better SAND recovery...

COARSE or FINE

Telsmith Single Screw Classifier (upper right) with Telsmith Sand Drag (foreground) in an Ohio sand and gravel plant.

To meet the most exacting specifications, Telsmith Screw-Type Sand Classifiers give you—

1. **Large water capacities.**
2. **Even feed—no surging.**
3. **Maximum dewatering action—dryer product.**
4. **Most economical operation.**
5. **Quick emptying tank.**

All these Telsmith advantages result from specially designed settling hopper and feed box—special raised sand discharge openings—low angle of incline with slow screw speeds—screws of special steel with water flushed cutless rubber bearings at lower end and roller bearings at upper end including roller bearing drive shaft and special quick emptying drainage valve.

TELSMITH

Sand Classifiers

TELSMITH Single Screw and Twin Screw SAND CLASSIFIERS— sizes: 20″ x 15′, 24″ x 20′, 30″ x 25′—capacities: 30 to 140 cu. yds. hourly for coarse sand; 17 to 80 cu. yds. hourly for fine sand.

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SC-1

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Marens Eqpt. Co., New Hudson, Mich. • Rish Eqpt. Co., Cincinnati 14, & Portsmouth, Ohio—Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. Robert S. Bailey, 816 W. 5th St., Los Angeles 17, Calif. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif. • Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash.

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compare these two items

ORDINARY TRACTOR SHOVEL

¾ Yd. [redacted] tractor shovel, nearly new, used only 4 mo's. Will sacrifice for half price. Phone [redacted]

The above newspaper classified ad appeared in March, 1954.

PAYLOADER TRACTOR SHOVEL

Top price at the Auction Sale among used tractor shovels was for a HOUGH Model HF "PAYLOADER", 2½ years old, which brought 68% of its original price. The unusually high price came as a complete surprise to even the auction officials.

The above report appeared in an April, 1954 publication.

Wise tractor-shovel buyers know there's more value in a "PAYLOADER" when it's new and that it'll bring more when they sell it. They know that The Frank G. Hough Co. has pioneered MORE developments and MORE improvements in tractor-shovels than all other manufacturers put together.

Further proof of "PAYLOADER" value is evidenced by the fact that you will seldom find a *used* one for sale — even though more "PAYLOADER" machines have been built than all other makes of unit-design tractor-shovels combined.

So, when you want maximum value and PROVEN PERFORMANCE in a tractor-shovel, you'll be wise to buy a "PAYLOADER". A complete range of sizes and models from 12 cu. ft. to 2 cu. yd. bucket capacity. Your nearby "PAYLOADER" Distributor is ready to serve you. The Frank G. Hough Co., 750 Sunnyside Ave., Libertyville, Illinois.

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Have you a dust recovery problem?

Bring it to WESTERN PRECIPITATION

... The Only Organization With Years Of "Know-How" In BOTH *Electrical* And *Mechanical* Recovery Methods!

If you have any kind of a suspension-recovery problem—whether dust, fly ash, fume, fog or mists—it will pay you to bring it to the leading organization in the field ... WESTERN PRECIPITATION CORPORATION. Western Precipitation not only pioneered, over 44 years ago, the first commercial application of the now-famous COTTRELL Electrical Precipitators, but also has been a leader for many years in the *mechanical* recovery field with its widely-accepted MULTICLONE Collectors.

Result:

Western Precipitation is unsurpassed in the all-important factor of "know-how" in BOTH the electrical and mechanical fields ... knows from years of first-hand experience whether your particular problem can best be solved by mechanical or electrical methods—*or by a combination of the two* ... can give you a direct and unbiased recommendation on the matter ... and then can provide the complete installation under *one* responsibility, *one* overall performance guarantee, even where Combination Multiclone-Precipitator (CMP) installations are made!

Western Precipitation products and services include ...

COTTRELL

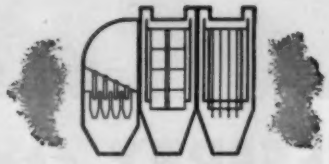
Electrical Precipitators

... the most efficient recovery equipment for high recovery, long life, low maintenance on practically any type of suspensions, wet or dry. COTTRELLS can be designed to handle a few c.f.m. —or millions—with equal ease, and at virtually any operating temperature. Recovery efficiencies closely approach 100% recovery, if desired, with very low draft loss, minimum power costs and negligible labor costs. *By all standards, Western Precipitation* COTTRELLS *give highest recovery at lowest cost per-year-of-service!*

MULTICLONE

Mechanical Collectors

... the most efficient, most compact, most trouble-free mechanical equipment for recovering suspensions from gases. Because of their unique small-tube design, MULTICLONES are unsurpassed in mechanical recovery efficiencies—require less space, less maintenance, and are far simpler to install. No filters or screens to replace, nothing to burn or cause fire hazards, no high speed moving parts to repair or replace. These and many other advantages make MULTICLONE Collectors the logical choice on installations where mechanical recovery is selected.



CMP UNITS

(Combination Multiclone-Precipitator)

... combine, in *one* compact installation, *both* mechanical and electrical recovery principles so that maximum benefit is obtained from the advantages inherent in each method. The MULTICLONE section centrifugally removes the larger and heavier suspensions (down to a few microns in diameter) ... and the COTTRELL section then electrically removes the very small particles remaining in the gases. Thus, the bulk of the recovery is obtained with relatively low-cost equipment, and the final clean-up is obtained with equipment having unusually high recovery efficiency—approaching theoretically perfect, if desired.

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Your plant is *different*, and we know it. We also know the right combination of Jeffrey equipment will raise your production and lower your costs.

Jeffrey's flexible standard units provide almost limitless combinations to meet industrial conveying and processing requirements.

The above photo, taken at a lightweight aggregate plant, is a case in point. Busily working are a Jeffrey Double Roll Crusher, Jeffrey Belt and Apron Conveyors, and a Jeffrey Bucket Elevator.

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In addition to these units, the following Jeffrey equipment is widely used in the aggregate, stone, sand and gravel, clay, phosphate and sulphur rock industries:

Scraper Conveyors	**Stackers**
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IF IT'S MINED, PROCESSED OR MOVED . . . IT'S A JOB FOR JEFFREY!

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Balanced Driving Assembly

VIBRATION in a motor truck is like an insidious disease. It starts in one place and spreads all over. It results in premature wear, failure of companion assemblies and excessive driver fatigue.

Autocar stops vibration before it gets started. A Dynamic Balancing Unit balances the driveshaft. In addition to this, balancing is extended to each unit of the driving assembly to assure that driveshaft, crankshaft, flywheel and clutch assembly are vibrationless and in balance with one another. Autocar even balances the front tire, rim and wheel assembly.

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Autocars are sold and serviced throughout the world

Send for the Autocar Fact Booklet. It describes Autocar's anti-vibration measures and other exclusive features which help make Autocar the quality truck of the industry. Mail the coupon today.

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241

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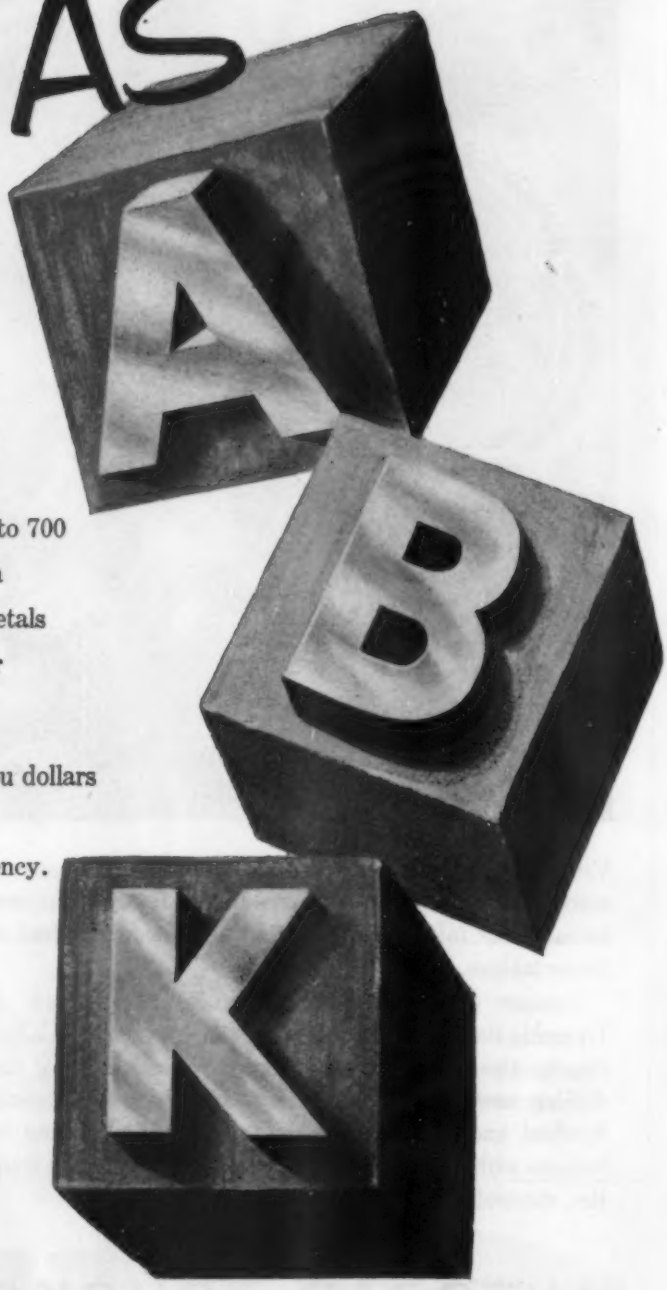

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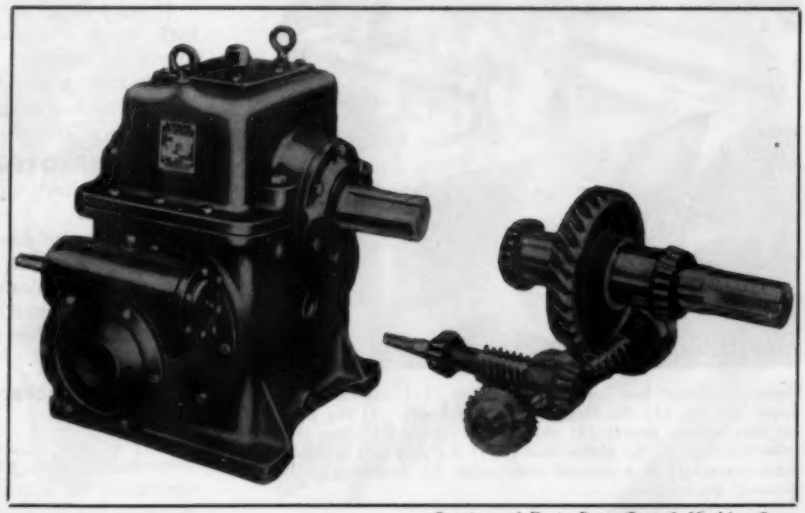
HEAVY-DUTY GEARS

By M. S. CLARK
Technical and Research Division
The Texas Company, New York, N.Y.

Part 1

THE use of gears for power transmission dates back several hundred years. Until the age of iron and steel, gears consisted of circular wooden wheels with wooden pegs fastened to the rims to serve as teeth. The power used in operating these mechanisms was provided either by man, animal, water, or wind. Wear was not too much of a problem with the crude wood-tooth gears, but later when cast-iron gears came into usage, some form of lubrication became necessary; lubrication also reduced some of the noise.

In those early days it was known that a greasy material would reduce noise. Animal fats were about the only lubricants available; so they were used. They served the purpose satisfactorily because speeds and loads were low and mechanical wear on the teeth was not too serious. Broken teeth could be renewed without too much trouble.



Courtesy of Foote Bros. Gear & Machine Corp.
Figure 1—Worm gear unit, with housing removed (right).

By the time the steam engine was invented, however, gears were made of iron which would withstand greater loads and speeds. Later, as the machine age continued to develop, gears of greater precision were required. At first spur and straight bevel gears were satisfactory, but with the advent of the steam turbine and electric motor, gear design became more of a science, and the herringbone type was perfected. Then the art of gear cutting really became an art because precision and strength of metal had to be co-ordinated.

Other types of tooth design which accompanied the development of automotive transportation and built-in power transmission units involved the helical, spiral bevel, and worm. They paved the way for the hypoid gear which is virtually standard in automotive equipment today. The objectives of the designers were smooth running, quiet meshing and uniform hardness of the gear teeth to withstand wear. These objectives only can be assured, however, with effective lubrication.

Modern industry today demands greater power and speed than ever before to satisfy the increasing demand for more and more production. At the same time, the turbines and engines that produce this power require gears that have greater toughness and higher precision than ever before. Only then can power be transmitted dependably into useful channels.

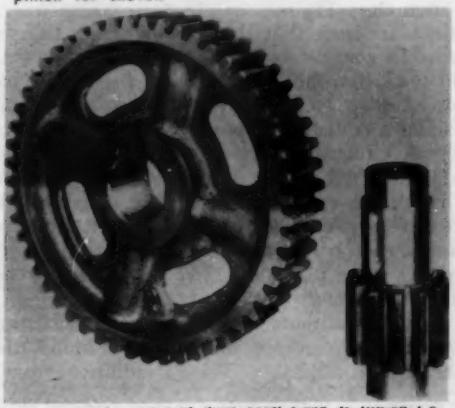
This question of gear tooth structure is all the more important due to the common practice of deliberately overloading gears two or three times beyond their rated capacity, in order to increase production. This demand for ever increasing production has placed a heavier load on the gears than perhaps on any other type of mechanism.

Obviously, overloading in this matter will shorten the life of the gears, although it can be counteracted to a certain extent, but not completely, by the use of heavy-duty type lubricants. The increased cost of gear replace-

Figure 2—Below: First intermediate swing motor gear and pinion for shovel.

Right: Herringbone gear and pinion for ball mill drive.

Second intermediate swing motor gear and shaft pinion for shovel.



Courtesy of Lima Steel Gear & Pinion Co.

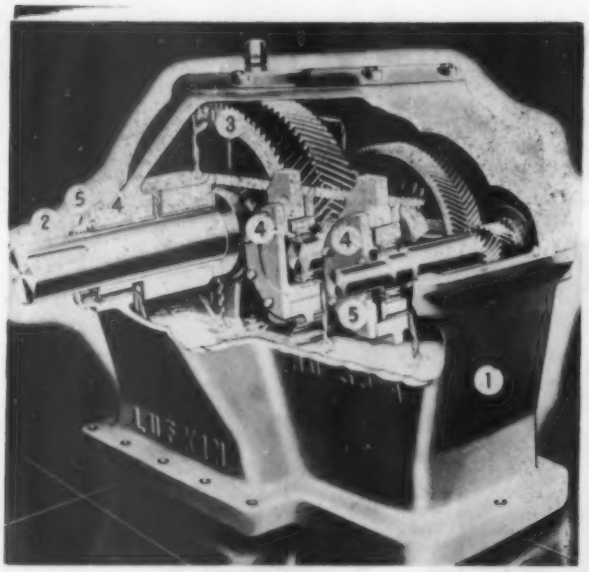


Figure 3—Gear box lubrication system. (1) indicates the reducer housing; (2) the forged alloy steel shaft; (3) the precision-cut herringbone gears; (4) the bronzoid crankshaft bearing, and roller bearings on the pinion shafts; (5) the patented oil seals. The main crankshaft is equipped with collar oil slingers and annular grooved drain covers.

ments is felt by many to be justified by increase in volume of goods produced.

LUBRICATION OF GEARS

The first petroleum-type gear lubricants consisted of the heavy, sticky residual products which remained after the lighter fractions[1] had been removed by distillation. Residual lubricants still are widely used on spur gears employed on slow-speed machines in steel, cement, and rubber mills where speeds are under 100 r.p.m.

Less viscous straight mineral oils of turbine grade are better suited for high-speed single helical and herringbone reduction gears where pinion speeds may be as high as several thousand r.p.m. These oils usually are highly resistant to deterioration in the presence of heat which may develop during operation.

TYPES OF LUBRICATION

"Thick film" lubrication exists where conditions of speed, load, and oil viscosity are such that a heavy film of oil remains on the teeth at all times. This film separates the tooth contact areas completely. The oil supports the load entirely by hydraulic action, and the important characteristic is viscosity.

"Boundary lubrication" prevails where operating conditions are such that the oil film is too thin to separate the teeth completely. High spots rub against each other, and thick film lubrication cannot be maintained dependably. Under conditions of boundary lubrication gear lubricants containing "polar" or "oiliness materials" usually are effective. These additive materials are preferentially attracted to metal surfaces with a powerful bond. If operating conditions are not too severe, this type of extreme pressure lubricant will function satisfactorily. However, if conditions get worse, and tearing of metal surfaces takes place, excessive wear and eventual failure will result.

Under conditions of heavy load which may promote boundary lubrication, the use of extreme pressure-type lubricants is advisable. The EP additives usually contain chlorine, phosphorus, or sulphur compounds or combinations of these elements. When the local high spots approach high temperature due to friction, chemical compounds of these materials with iron are formed. These compounds are softer than the iron and provide lubrication. This prevents further tearing and allows the gears to operate without imminent failure.

If, however, pressures or shock loads are extremely high, there is a point at which even EP agents can no longer be effective, and excessive wear and pitting are apt to take place. Where gears are continually operated at overload conditions, the use of EP lubricants will merely postpone the evil day when failure will take place.

IMPROVEMENTS IN PERFORMANCE

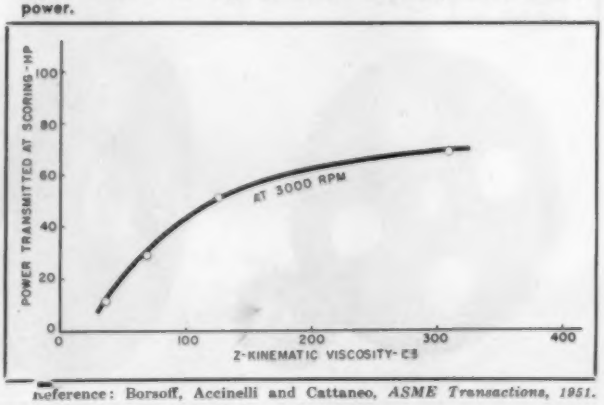
Two methods are being used today to improve the life of gears:

1. Gear manufacturers are providing tougher steels and better precision construction.
2. Lubricant manufacturers are continually improving quality of gear lubricants and searching for EP agents that will give improved protection against scuffing and wear.

Gear Manufacturers' Activities Since the general trend in industry is towards greater loads, higher speeds, and force-feed lubrication, the gear manufacturer is continually cooperating to improve gear performance. Following are some of the procedures:

1. Improved steels and heat treatments are being used. These are restricted to some extent by limitations of machinability.
2. Accuracy of manufacture is stressed. *Accurate tooth spacing* is especially important with high speed gears. Inaccuracies will result in lubricant failure, as well as gear tooth failure, to result in loss of power transmitted. *Tooth surface finish* also is important. Rough finishes usually result in high operating temperatures which are apt to cause deterioration of gear teeth, as well as lubricant.
3. Special attention also is being given to mounting of gears to prevent damage to teeth and to make sure there is no misalignment.
4. Improved guards are being provided to keep oil in the housings and to prevent contamination.
5. The use of welded-steel gears to replace cast gears is being extended. This provides gear teeth with greater strength and resistance to wear and reduces the possibility of hidden defects within the gears.
6. Manufacturers are continually modernizing and redesigning units and at the same time incorporating the latest methods of heat treatment and other metallurgical and manufacturing improvements. By taking

Figure 4—Chart showing the effect of viscosity on transmitted power.



Reference: Borsoff, Accinelli and Cattaneo, *ASME Transactions, 1951.*

[1] Fractions: — In the petroleum industry fractional distillation results in removal of gasoline, gas oil, kerosene, and lubricating oil stocks.

A PENNY can still buy you something important—

Enough NOPCO ERTRANE* C to give each barrel of portland cement all the advantages of air-entraining cement...

Mill superintendents who have kept careful check on costs report that to make air-entraining cement Nopco Ertrane C adds less than a cent a barrel to the cost of regular portland cement.

Yes, it's true there are other agents which cost slightly less than Ertrane C—*to start with.* But count in time and labor costs, you'll find that with Ertrane C you're way ahead of any other product.

For, since Ertrane C is a completely water-soluble powder:

1. You *don't* have to pay for freight and storage on water, as with liquid additives.
2. You *don't* have to add other chemicals to dissolve it, as with other powdered additives.
3. You *don't* have to take time out to clean out clogged feed nozzles.

We urge you to try Ertrane C in your own cement, mixed your own way. We'll gladly supply testing samples. Because we know that once you keep records on it, you'll air-entrain with Ertrane C for life. Write today.

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advantage of newest techniques gear units can be made to closer tolerances, and this provides increased capacity ratings compared to older styles.

Lubricant Improvements As a result of intensive research study pertaining to gear lubricants, a number of interesting facts have been developed:

1. Seven types of additives have been found to be very effective in providing long life and satisfactory lubrication of gears:
   (a) Fatty or polar compounds—Used to reduce friction.
   (b) Pour depressants—To reduce the pour point or channel point of the lubricant so that it will flow freely at reduced temperatures.
   (c) Viscosity index improvers—To improve the viscosity-temperature relationship of the lubricant and minimize the viscosity spread over service temperature range.
   (d) Foam depressants—To prevent foam or to accelerate foam collapse and thus minimize loss of lubricant due to foaming in service.
   (e) Oxidation inhibitors—to prevent undue thickening due to oxidation and give longer life to the lubricant.
   (f) Corrosion inhibitors—To minimize attack of water or other corrosive material on metal surfaces.
   (g) Extreme pressure agents—

Sulphur, Chlorine, Lead Soap	These prevent welding of metal surfaces by forming an easily sheared film of iron sulphide, iron chloride, or lead sulphide.
Phosphorus	To prevent welding of metal surfaces by forming a low melting point phosphoric alloy.

2. Hypoid gear lubricants (active EP type) carry 10 to 20 times the load formerly carried when straight mineral lubricants were used.
3. Four general types of lubricants are required for various types of gears:

(a) Straight mineral oils	For gears operating under conditions of comparatively low loads and average speeds.
(b) Straight mineral residual type oils with no additive	For general lubrication of all types of gears (except hypoid) under normal operating conditions.
(c) Oils containing polar or fatty materials	For bronze-on-steel worm gears or any others (except hypoid) where thin film lubrication conditions may prevail.
(d) Oils containing chemically active EP additives such as sulphur, chlorine, phosphorus, or lead compounds	For all gears (including hypoid) operating under conditions of high speed and low torque, low speed and high torque, shock loading and under high pressures and speeds.

4. Gear teeth have two zones of lubrication:
   (a) Boundary or thin film at the location of heaviest load.
   (b) Hydro-dynamic or thick-film at locations of lighter load where a comparatively heavy layer of oil carries the load.
5. Although a great deal of research has been carried out, a formula for computing the proper viscosity and type of gear lubricant has never been developed due to the complexity of factors involved. Usual practice is to select the lubricant on the basis of previous practical field experience with gear operation under various conditions. One investigator[2] has presented the following formula which it is claimed will aid in predicting loads at which scoring will take place, using speed of the pinion, viscosity of lubricant, and bulk oil temperature values:

   $W = (aZ^{1/2} - bT) / N^{2/3}$ where
   W = Scoring load
   N = Rotational speed of pinion
   Z = Nominal viscosity
   T = Bulk oil temperature
   a and b = Constants for the machine

   This investigator further states, "Though the practical problem of selecting the right lubricant for a specific application can usually be solved by reference to the immense body of practical experience that has been accumulated in this field, the final choice is essentially an empirical one and the theoretical justification for it is not always clear. However, the progress achieved in recent years encourages the belief that a full solution of the important problem of predicting the performance of gears of all kinds is not indefinitely remote."
6. Other investigators[3] have shown that the viscosity of a gear lubricant is an important factor in the power transmitting capacity of gears. They have presented the following formula (which is an adaptation of Lewis' original equation for predicting maximum gear tooth loads):

$$W = Spby \left(\frac{ZK}{2K + ZV}\right), \text{ where}$$

   W = Tooth load (lb.)
   S = Safe static stress (p.s.i.)
   p = Circular pitch (in.)
   b = Width of face (in.)
   y = Tooth form factor
   Z = Absolute viscosity in lb./min. ft.
   K = Constant assumed by manufacturer
   V = Pitch line velocity (f.p.m.)

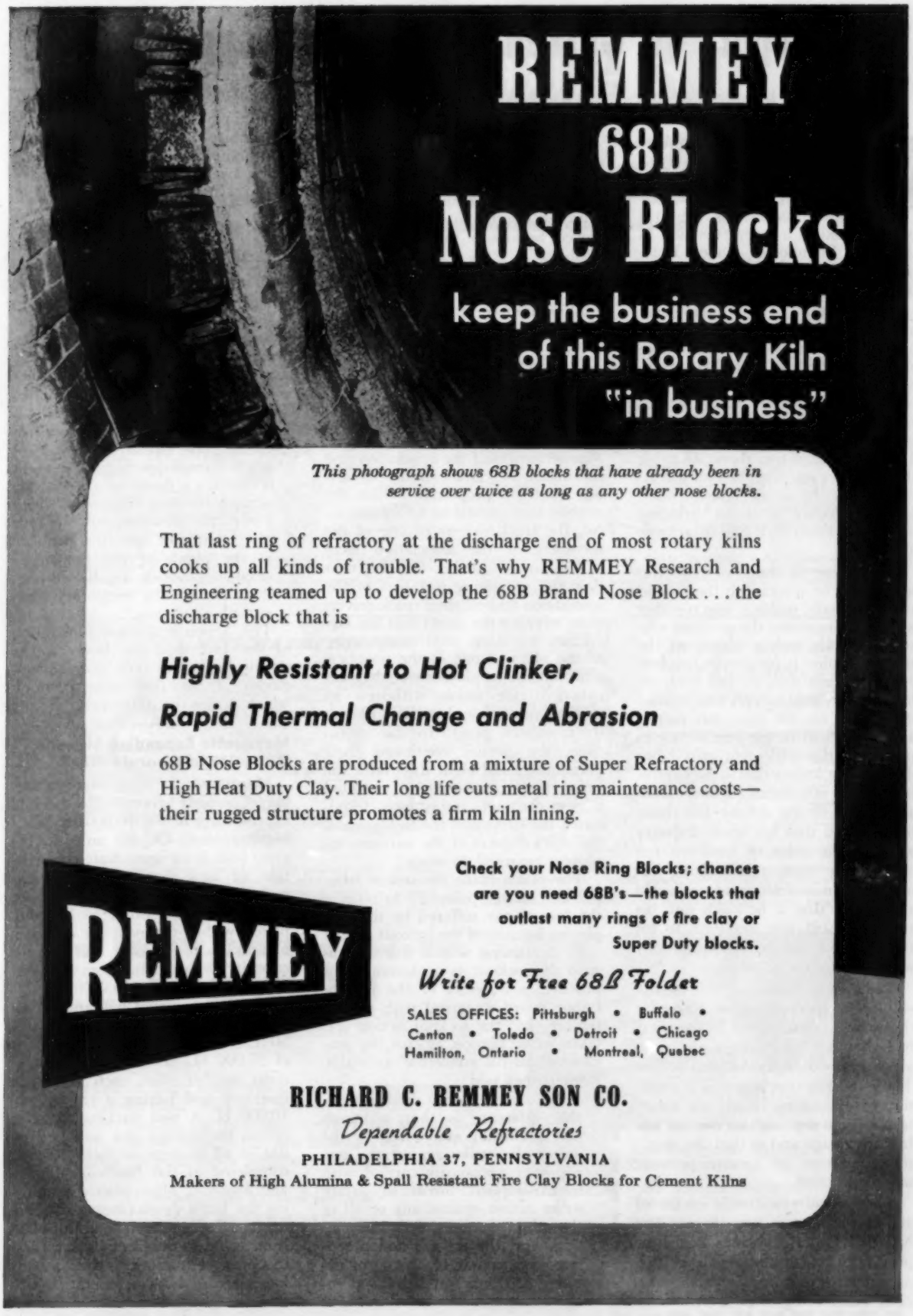
   Based on this modified Lewis formula, Figure 4 shows the effect of viscosity on transmitted power for gears on a test apparatus at one speed — 3,000 r.p.m.

Other Investigations

   (a) Research is being carried on to determine the fundamental reactions that take place when various EP agents are used.
   (b) New types of EP additives are being investigated.
   (c) Since it is difficult to predict types of lubricants required for various types of gears, it is usually necessary actually to run laboratory tests using the specific gears involved. The following types are being used in this testing program:
      Traction motor gears
      Open gears
      High-speed aircraft gears
      Hypoid gears
   (d) Considerable work has been done with the Buckingham[4] machine with the hope that it would differentiate between various oils and additives in regard to their prevention of scuffing. To date it has been found that scuffing starts at the same load with straight mineral as with EP lubricants. The EP agent, however, restricts tooth wear to initial scuffing, but with a straight mineral oil alone failure occurs at an accelerated rate.

[2] E. T. Hunt in "Lubrication Engineering," August, 1952.
[3] Borsoff, Accinelli and Cattaneo, "ASME Transactions, 1951."
[4] A laboratory testing unit devised by Professor Earl Buckingham of Massachusetts Institute of Technology, to determine fatigue endurance of metals. Later it was adapted to test gear lubrication.

(To be Continued)



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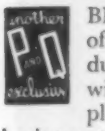
Report on Current Labor Developments

Lockout by Members of Employer Associations O.K.'d



BECAUSE many members of the pit-and-quarry industries do their bargaining with unions through employer associations, they will be interested in a recent decision of the new Eisenhower Labor Relations Board which reverses a long-standing policy.

When bargaining with employer associations, unions have frequently used the technique of putting separate pressure on individual members quite successfully. Threatening to strike one member while permitting the others who are his competitors to continue to work has been a particularly potent threat to bring that member into line. Similar threats made, one by one, against other members could lead to bringing enough of them into line to achieve a victory.

And where the threat of strike was insufficient to accomplish the desired result, actually striking, one member at a time, increased the pressure substantially. In such a situation, the struck member is frequently helpless. He recognizes that he has been selected, not because of any special dereliction on his part, but merely as a battlefield in the war of nerves preceding the settlement of a labor dispute. He knows that if he capitulates, the employers' united front against a strong union has been broken, and that his whole industry will pay the price of weakness not only in the current bargaining but in future negotiations as well. He also knows that if he holds out, his customers will just gravitate to his competitors, and his business may suffer permanent damage.

The logical development is for the employers' association to recognize the strike against one of its members for what it is—namely, a threat to all of them—and to take joint action. The most effective action is a cessation of operations by all the members so that none will receive an unfair advantage and so that the maximum amount of counter-pressure may be applied.

The difficulty with this course of action was that it was illegal. The National Labor Relations Board, as previously constituted, regarded such an action to be an unfair labor practice, considering that it interfered

By S. HERBERT UNTERBERGER

S. Herbert Unterberger and Company
Industrial and Labor Economists
Washington, D. C. — Philadelphia, Pa.

with the employees' guaranteed rights of self-organization and because it discriminated against employees because of their union membership.

The National Labor Relations Board, as presently constituted, takes a different view. It made its decision in a case involving the following facts.

Prior to the expiration of the union agreement covering the truck drivers, the union notified the association of its desire to open negotiations to change the agreement. Thereafter, representatives of the association and the union met and considered various contract proposals. When the negotiations proved to be unsuccessful, the truck drivers of one of the members of the association were called out on strike. On the next day, the remaining members of the association laid off their truck drivers after advising the union that the layoff action was the result of the strike at the plant of one of the members and that the employees would be recalled if the union withdrew its picket line and ended the strike at its member's plant. In the meantime, the parties continued their bargaining, and eight days later the union and the association executed a new contract, respectively terminated the strike and the lockout, and the truck drivers of the various employers returned to work.

The union made the unfair labor practice charge primarily to recover the loss of pay suffered by the employees because of the lockout action.

In explaining why it did not regard the lockout as an unfair labor practice, a majority of the present Labor Board disagreed with the inference that the lockout action was taken in retaliation against the employees' lawful concerted activities. Rather, they said:

> ". . . we think the more reasonable inference is that, although not specifically announced by the union, the strike against the one employer necessarily carried with it an implicit threat of future strike action against any or all of the other members of the association. For, the union's action represents a similar technique of exerting economic pressure to atomize the employer solidarity which is the fundamental aim of the multi-employer bargaining relationship. The calculated purpose of maintaining a strike against one employer and threatening to strike others in the employer group at future times is to cause successive and individual employer capitulations. Therefore, and in the absence of any independent evidence of antiunion motivation, we find that the (employers') action in shutting their plants until termination of the strike at (the one employer's plant) was defensive and privileged in nature, rather than retaliatory and unlawful."

They concluded, therefore, that:

> ". . . a strike by employees against one employer-member of a multi-employer bargaining unit constitutes a threat of strike action against the other employers, which threat, *per se*, constitutes the type of economic or operative problem at the plants of the non-struck employers which legally justifies their resort to a temporary lockout of employees."

This action is another illustration of the fact that the laws on the statute books are only very general guides. It is their interpretation which makes the difference.

Marquette Expanding Storage Capacity at Georgia Plant

Marquette Cement Manufacturing Company recently authorized expenditures of $1,500,000 for plant improvements. Of this amount, the great bulk is for immediate construction of new cement storage and packing facilities at their Rockmart, Ga., plant. The work, to be completed within the next six or seven months, will increase the storage capacity at that plant from the present 60,000 bbl. to 115,000 bbl.

The improvement will entail construction of one large storage silo, 50 ft. in diameter and with a capacity of 35,000 bl., centered in a nest of eight smaller silos, each 25 ft. in diameter and having a capacity of 10,000 bl. A new packing plant to adjoin the storage silos will be similar in all respects to those recently completed at the Nashville, Tenn., and Brandon, Miss., plants. Employing the latest developments in packing and loading machinery, this plant is expected to establish a record low in power consumption while achieving a record high in operating efficiency.

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. . . today's most advanced shovel-crane control system

Speed-o-Matic hydraulic clutch piston automatically self-compensates for normal lining wear and heat expansion. Weeks and in some cases months may pass before clutch adjustment is necessary. Less maintenance means more output per day.

Speed-o-Matic's smoother, faster operating cycle makes dig-swing-dump action one fluid motion. Variable hydraulic pressure is transmitted directly to the clutch, eliminating external mechanical linkages. There's no jerk, jump or balky action.

You get perfect "feel" of the load at all lever positions. Assures spotting heavy or light loads easier, safer and with pinpoint accuracy unparalleled in the shovel-crane field. Accurate fingertip control means more loads per day.

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Only LINK-BELT SPEEDER has Speed-o-Matic power hydraulic controls

Yes, only Link-Belt Speeder offers you true power hydraulic control on shovels, cranes and draglines. It's the famous Speed-o-Matic control that can boost your daily production output as much as 25%!

It's one of *many extras* that are standard equipment on every current model Link-Belt Speeder, which makes it the most advanced line on the market today. You'll find all the facts on Speed-o-Matic in this new Bulletin No. 2424. For your copy, see your nearest distributor, or write direct.

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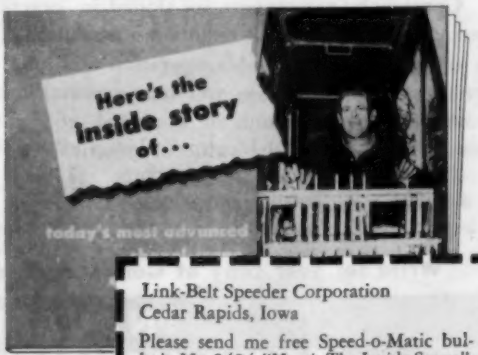
Factory-trained distributor sales and service specialists—everywhere



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LINK-BELT SPEEDER

Link-Belt Speeder Corporation
Cedar Rapids, Iowa

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Company .....
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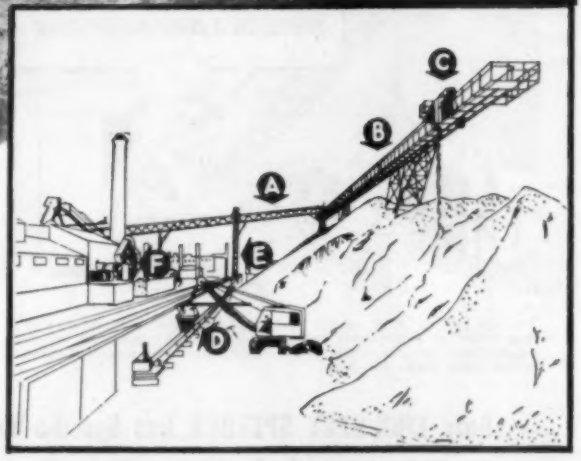
Another Example of Continental's Belt Conveyors at Work -

The Southern Cement Company's conveying and elevating system in their Birmingham Plant incorporates several advanced features of design—one of which is illustrated above and to the right.

Continental's engineers are skilled in "practical engineering" — the kind that results in installations designed for economical, dependable operation and long life. All Continental products — whether especially designed systems and equipment or standard equipment and accessories — show the value of practical engineering.

• *Call Continental engineers in on your job — or specify Continental on your next replacement order.*



Slag is carried to storage by Conveyors A and B and discharged to storage at any point by self-propelled Tripper, C. As material is needed for processing, it is loaded by shovel onto Reclaim Conveyor D, raised by Bucket Elevator E, and discharged onto return side of Conveyor Belt A., which delivers it to Plant F.

Write for your copy of Continental's new Catalog ID 481, "Continental Belt Conveyors."

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In the yard . . . and in the field . . . coordinate Ready Mix concrete operations with

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With Motorola radio, you gain unbroken control over your expensive personnel and equipment—eliminating most of the blind chances that threaten your profit on the job. No more "unexplainable" delays due to traffic or breakdown. No more "lost" trucks—for now you can get effective action to stop these work-stoppers in a matter of seconds.

Installed, operated, and maintained, your radio will cost about one dollar per day per truck. At $8.00 per hour operating cost on each truck, if you save only seven minutes per day, you've paid for the radios and gained a multiple return in other directions.

So don't delay! Find out exactly how Motorola can do a job for you. Let us send an engineer to give you the whole, straight facts—and remember he's from Motorola—the oldest and largest organization in the business. He'll put your interests first, and see that you're treated right!

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Motorola Communications & Electronics, Inc.

A SUBSIDIARY OF MOTOROLA, INC.

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RELY ON THE "C"-man...

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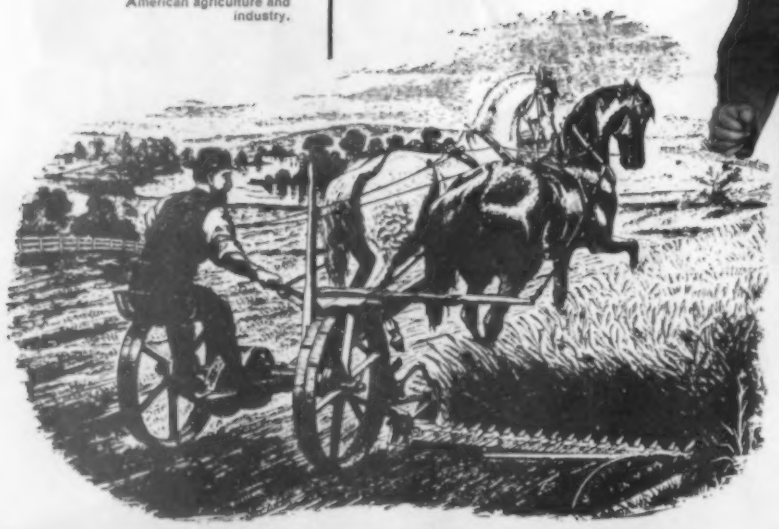

Backed by 107 years of packaging experience

Chase Bag experience costs you nothing, yet it's apparent in the recommendations of every "C"-Man.

It's apparent in every Chase Bag product, too . . . the 107 years' insistence on quality—a striving for maximum product protection and package appeal.

You cannot put your packaging problems in more capable hands. You cannot put your product in better bags. *Contact your "C"-Man today!*

over a century of know-how is behind every CHASE MULTIWALL BAG

Low Cost Protection For Your Rock Products

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Available from 2 to 6 plies—Sewn Valve, Sewn Open Mouth, Pasted Valve, Pasted Open Mouth.

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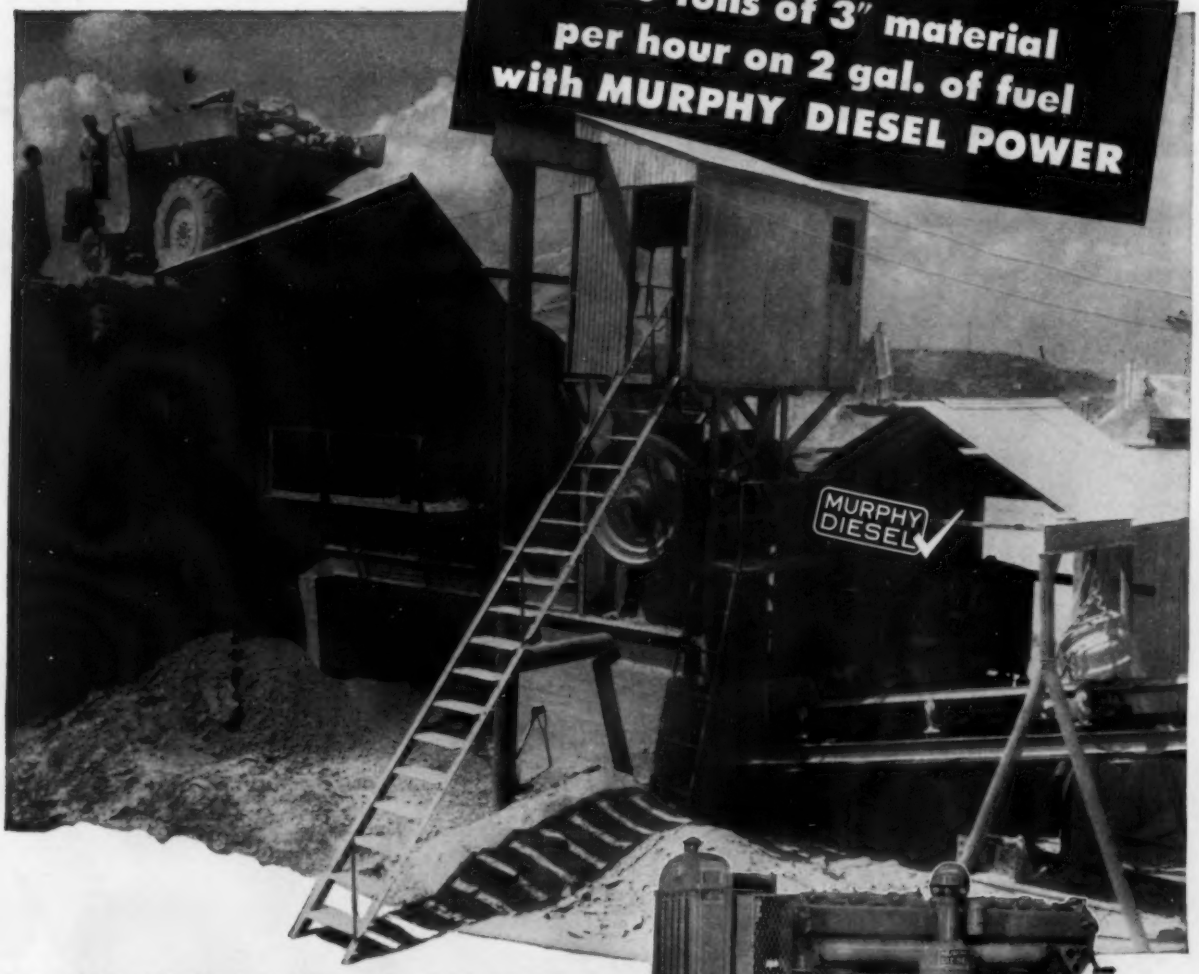
30 BRANCHES AND SALES OFFICES—STRATEGICALLY LOCATED

100 tons of 3" material per hour on 2 gal. of fuel with MURPHY DIESEL POWER



C. W. CHANDLER, President, Chandler Materials Company, Tulsa, Okla., is another in the growing list of Murphy Diesel owners who has proved the truth of the reports of other rock operators on the operating economy and dependability of Murphy Diesels. Mr. Chandler decided to find out about Murphy Diesels for himself about a year ago. He put a Model 11, rated at 100 H.P., continuous, 110 H.P. intermittent, on his Rogers 20x36 primary at Garnett, Okla. He now reports he is producing 100 tons per hour at a 3" setting and consuming only about two gallons of fuel doing it.

Reports like this come from wherever Murphy Diesels are used to power rock crushers. But there is only one way to find out for yourself—Put a Murphy Diesel on your job. Call your Murphy Diesel Dealer—he'll be glad to give you full information. Or, write direct.

MURPHY DIESEL COMPANY
5307 W. Burnham St., Milwaukee 14, Wisconsin
Dealers in principal centers throughout the nation

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Heavy duty power
for rock crushing

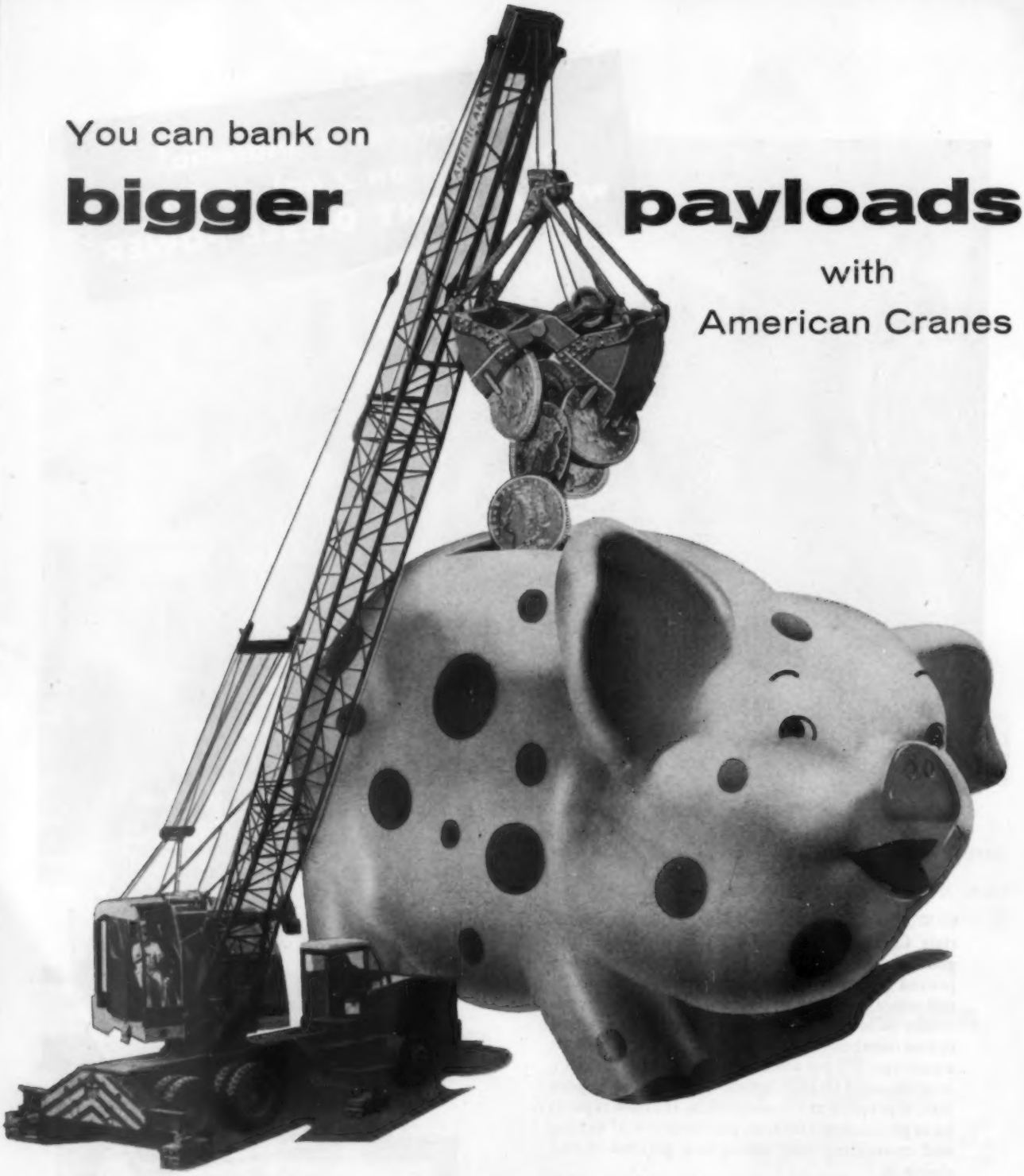
Murphy Diesel Engines and Power Units are available in sizes from 90 to 240 H.P. Engine speeds are 1200 and 1400 rpm. "Packaged" generating units are available with capacities ranging from 60 to 154 K.W.

You can bank on

bigger payloads

with

American Cranes



The BIG CAPACITY American 375 and 750 mean BIG PAY LOADS! Fast, smooth operating American cranes handle full capacity loads, *load after load* to boost production, increase profits!

It'll pay you to find out about the American 375 crawler or truck crane and the American 750 crawler. Available as a crane, shovel, backhoe, clam, drag or magnet crane. Write or call your distributor for complete details.

American Hoist

American Hoist & Derrick Co.
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Manufacturers of:

Crawler & Truck Cranes • Steel Derricks • Crosby Blocks • Wire Rope Sheaves • Locomotive Cranes
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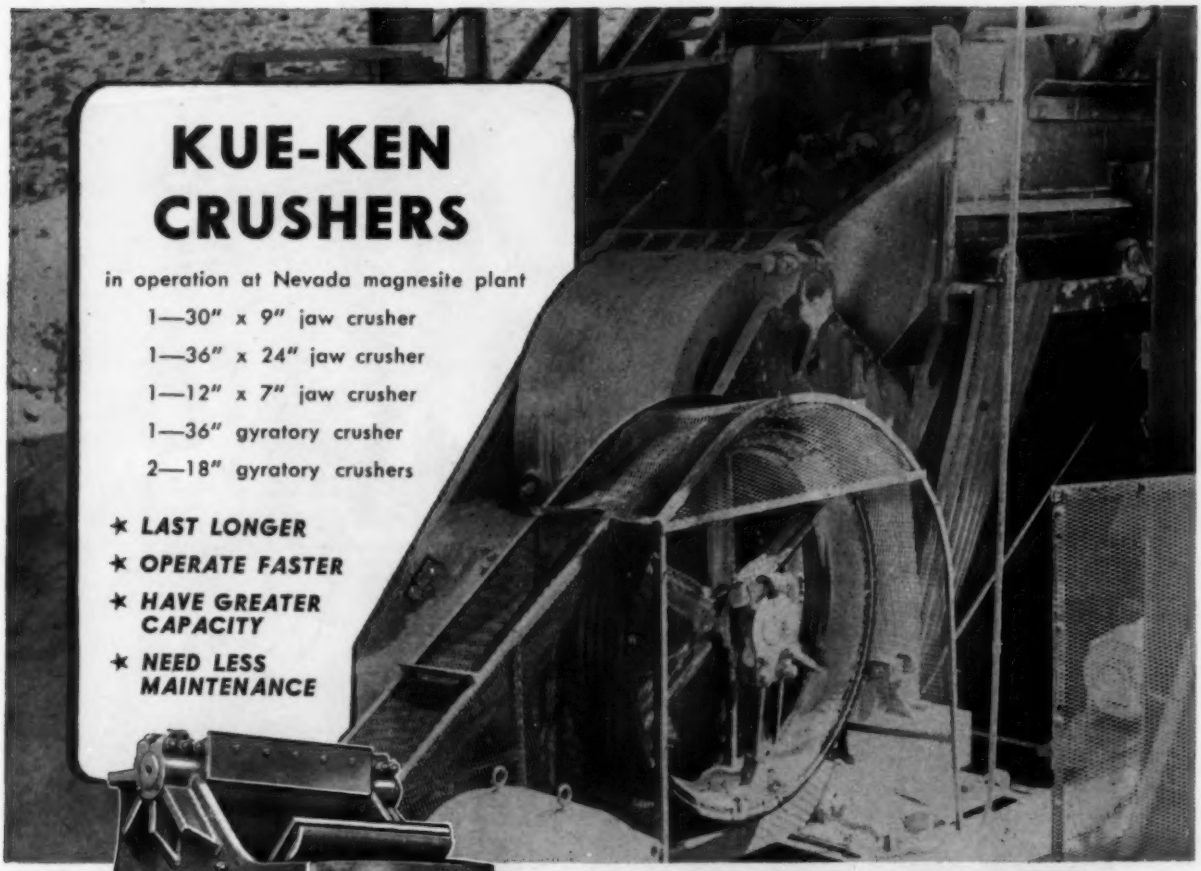
KUE-KEN CRUSHERS

in operation at Nevada magnesite plant

1—30" x 9" jaw crusher
1—36" x 24" jaw crusher
1—12" x 7" jaw crusher
1—36" gyratory crusher
2—18" gyratory crushers

★ *LAST LONGER*
★ *OPERATE FASTER*
★ *HAVE GREATER CAPACITY*
★ *NEED LESS MAINTENANCE*



Continuous crushing under heavy rock dust conditions possible only with KUE-KEN ...the crusher with the crankcase-type lubrication system!

★ ★ ★

A Nevada magnesite mine crushes constantly under extremely bad conditions. Heavy layers of rock dust cover the crushers. If the crushers were of the ordinary type, periodic shut-downs would be necessary to replace worn parts. This is not necessary with Kue-Ken and is one reason why Kue-Ken crushers are used exclusively!

Kue-Ken is the only crusher in which dust is sealed out and the internal mechanism operates in a bath of clean, cool oil. No wonder that after starting with one Kue-Ken crusher, this Nevada magnesite plant now has six in daily operation! The trouble-free operation of Kue-Ken crushers provides this plant with the lowest cost-per-ton crushing!

Regardless of your crushing conditions, you will get more for your crushing dollar with Kue-Ken. Investigate now!

KUE-KEN CRUSHERS

"LOWEST COST-PER-TON CRUSHING"

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ONE DEMONSTRATION ...SOLD VOGT, Inc.

Vogt, Inc., of Okauchee, Wisconsin, witnessed a 4-Wheel Drive SHOVELOADER demonstration February 11, 1954, at their washed sand and gravel pit. Mason and torpedo sand, and 1″, 2″ and 3″ washed gravel were loaded into trucks. The SHOVELOADER also demonstrated digging and loading bank run gravel with frost 2 feet deep on bank and mixed with hardpan. After the demonstration Vogt, Inc., gave three big reasons why they decided to buy the SHOVELOADER.

1. The TRIPLE-ACTION bucket which breaks back 43° down low, crowds and hoists in one motion, heaping easily. Such heaping action helped load 5 and 6-yard trucks in one minute's time.
2. The forward reach of the SHOVELOADER (minimum is 3′ at top of lift fully dumped) made it easy to spot and peak all loads in the center of the box of all the diversified hauling equipment used.
3. The planetary reduction drive in each wheel minimized skipping of drive wheels, avoiding throwing of dirt into washed sand and gravel.

If you want the best value for every dollar you spend, see a SHOVELOADER demonstration before you buy any loader. By writing The Baker-Lull Corporation, 356 West 90th Street, Minneapolis, Minnesota, you can obtain demonstration reports along with Bulletin AD-55A to prove to yourself that SHOVELOADER is *the new leader in loaders.*

Baker Lull
handling equipment

SHOVELOADER®
THE NEW LEADER IN LOADERS

Why Sign Service Agreements?

Atlas Powder Company originally published this article in its technical bulletin "Better Blasting". The editors of Pit and Quarry feel it of sufficient interest to quarry operators to merit republication in this magazine. Since many operators and even some insurance company representatives are seeking additional information on coverage of assumed liability, and since so many operators are presently accepting help from explosives companies without formal service agreements, we feel it extremely important that the field be aware of these facts: (1) You can get coverage for this assumed liability from casualty insurance companies for a very small additional premium. (2) You cannot get such coverage unless a service agreement is signed to define clearly the exact relationship of the helper. This is the basis on which the National Bureau of Casualty Underwriters has issued its guide rate. Without a service agreement and explicit coverage of this in your insurance policy, a state of confusion exists and the operator can find himself in a tedious legal hassle if an accident or damage suit should occur. Pit and Quarry would welcome inquiries on this article and will open its pages for further discussion in later issues.—The Editors.

WHEN you request Atlas to lend you the services of one of its employees to assist you with your blasting problems, his status is important to you, your insurance company and Atlas. Your insurance company should be advised in advance that you are borrowing his services. Otherwise, in case of an accident or claims for vibration damage, there may be a delay in the settlement of claims, and sometimes you may even be involved in legal proceedings.

When an explosive man comes to your operation to help you load and shoot, he is temporarily working for you as a loaned employee, and normally his status is defined in some form of service agreement.

The service agreement expresses the relationship between the Atlas man and your company, but the signing of the service agreement alone does not completely solve the problem. Standard public liability insurance policies cover only the liability expressly provided for in the policy and specifically exclude any other liability assumed by the insured.

This situation, of course, has been going on for a long time, every day, in all parts of the country. Accordingly, ways and means to take care of it have been worked out, and these are the things that you ought to do:

1. You should sign a service agreement with the explosives company clearly establishing that the explosives representative is a loaned employee and that you are assuming responsibility for his work.

2. You should have a copy of this agreement attached to your insurance policy and specifically covered by your insurance policy, paying the nominal premium to provide for this assumed liability.

If the second step is not taken, whether a service agreement has been signed or not, the explosives user can find himself involved in expensive litigation. If both steps are taken, the insurance company has covered the clearly defined liability and if the plaintiff has a justified claim the insurance company settles the suit without question.

The rates to cover "assumed liability" for this service are extremely low.

The National Bureau of Casualty Underwriters which established guide rates for insurance companies throughout the nation, recommends an annual premium of $38.50 to cover $100,000/$300,000 bodily injury plus $36.25 to cover from $25,000/$50,000 property damage.

For $200,000/$400,000 bodily injury the guide rate for the annual premium is $45.00 and for $50,000/$100,000 property damage the guide rate is $43.75. (The base guide rate is $25 for $5,000/$10,000 bodily injury and $25 for $1,000/$10,000 property damage.)

Since many companies pay a premium of $3,000 to $4,000 annually for comprehensive general liability this small additional premium for assumed liability is just a drop in the bucket. Considering the vast amount of time and trouble which such a provision can help you avoid, the acquisition of this protection is a "best buy" in any man's business.

Now the question is: Why has there been so much difficulty in the past in getting service agreements signed and in clarifying assumed liability? We feel most difficulties have been due to general misunderstanding and lack of information on insurance coverage.

Nobody likes to sign anything he isn't sure of. The fact is well known that a man can get himself into a lot of trouble just by signing his name. Documents like peace petitions, hotel registers, blank checks and, sometimes, marriage licenses have made many a man regret a careless signature.

So that's probably why many explosives customers get panicky when a powder representative asks them to sign a service agreement. Getting service agreements signed is too often an arduous and disagreeable task for the explosives man—and it shouldn't be.

It shouldn't be arduous or disagreeable because, as we explained before, the salesman is actually doing the customer a favor by asking him to sign a service agreement, and the customer is doing himself a good turn when he does sign it. If you're not convinced yet, please lower those eyebrows for a few paragraphs and we'll explain further.

In the first place, you know, our service agreements used to be known by the sinister title "release forms". No wonder nobody wanted to sign them! But actually whatever name the rose goes by, it is still merely a signed statement of an understanding which already exists whenever an explosives representative helps you with your blasting. Oral agreements and even unwritten customs and traditions have a way of standing up in court, particularly when backed by apparent facts. And the fact of this matter is simply that the explosives salesman is acting as your employee when he helps you with your blasting. The service agreement seeks to establish this fact in blue-black and white, but the fact stands whether down in writing or not.

The free technical service offered by Atlas and other responsible explosives companies is just what its name implies. Our man is helping you, for free, to put explosives to full and profitable use. You are the one telling him what you want to shoot. He makes suggestions as to powder load and firing methods, perhaps,

Atl 1553-C 30 Pads 12-52

SERVICE AGREEMENT

WHEREAS, the undersigned customer has requested and may hereafter, from time to time, request from Atlas Powder Company certain assistance, said assistance including, but not being limited to, advice, suggestions, and recommendations in connection with the performance of customer's blasting work,

NOW THEREFORE, Atlas Powder Company, in consideration of the acceptance by the customer of the obligations set forth herein, hereby agrees to permit said customer, at certain times, the temporary use, free of charge, of the services of Atlas Powder Company employees, and the undersigned customer hereby expressly agrees that said employees, while engaged in rendering any such assistance, are and shall be, on each occasion and for all intents and purposes, the temporary employees of the customer and subject to the customer's exclusive supervision and control. The customer shall be fully responsible for all of the results and consequences of such assistance, expressly excepting, however, liability, if any, for injuries or death of said temporary employees

This Service Agreement shall continue in force until either party notifies the other, in writing, of its desire to terminate the same.

Dated 195 at

ATLAS POWDER COMPANY

CUSTOMER

By Sales Representative

By Title

Service agreement form used by Atlas Powder Co.

but you are the one who gives him the go-ahead. Yours is the final decision whether to shoot or not to shoot under certain conditions. In other words, you're the boss.

Now why is the explosives man doing you a favor by asking you to sign a service agreement? And why are you doing yourself a favor when you do sign it? The answer is simply that by making this agreement you are avoiding the possibility of endless, tiresome, time-consuming and expensive litigation if . . . you should be involved in a lawsuit.

Because here's how this lawsuit business works. If there should be an accident involved in your blasting, or if you are sued for vibration or property damage, and there is the slightest possibility that the explosives manufacturer might be involved, the plaintiff sues both you and the powder company. After all, the plaintiff doesn't care *who* pays, and just in order to be sure of hitting somebody, he tries to sue everybody he can. You, of course, turn your troubles over to your liability insurance company. And then, as Shakespeare says, "If 'twere done when 'tis done, then 'twere well it were done quickly." But it ain't done.

If your insurance company sees any liability on the part of the powder company, it's only good business for them to press this. On this basis, the insurance company will not settle the claim but will let it come to court for a jury to decide where the liability rests. And then you, the operator, find yourself anywhere from ankle-deep to neck-deep in legal red tape.

If it were only the trial, it wouldn't be so bad; but when you get tied up with a lawsuit, there are so many pre-trial procedures—conferences, searching of records, depositions, travel, etc. and etc. Ask any operator who's been through this mill and he'll tell you how much it costs in time, money, and worry.

On the other hand, if you have signed a service agreement, and had it endorsed on your insurance policy, you have nothing to worry about. Your insurance company goes ahead and settles justified claims, and you can devote your time to production and profits.

Most insurance companies *want* their clients to sign these service agreements. They feel that the assistance of technical explosives men will promote better blasting practices and therefore lessen the likelihood of damage suits. . . .

As one insurance company put it: "Contractual liability rates are low in this case because we feel the hazard is reduced when service of an explosives expert is used."

Your company attorney, too, has an interest in this. Like most attorneys he probably likes to see agreements clear cut. Here is what one lawyer said: "I feel there should be no hesitancy on the part of any company in agreeing to cover the contractual liability under agreement for a nominal premium."

You will, of course, want to check with your insurance company if you have not already investigated the assumed liability clause and premium. We are running this special story on assumed liability, because we have found that many operators of quarries, strippings, and other types of work are not familiar with this insurance technicality.

We feel that you, like Dragnet's Sgt. Joe Friday, want the facts—and we've tried to give them straight from the shoulder. After all, Atlas has always been noted for its technical service, and we would like to continue giving it wherever it is truly needed; but we want it to be a service that's safe for you to use and safe for us to give. That's the only way we can make everybody happy . . . and promote better blasting.

Mines Bureau First Aid Book Serves Heavy Industries

First Aid, a Bureau of Mines manual issued in 1953, is designed for the study and training of employees engaged in industries which may be hazardous or accident-prone — particularly the heavy industries. Clearly written and illustrated throughout, the manual gives instruction for on-the-spot treatment of injured workers. Suggestions for teaching first aid courses and tips on proper equipment are included.

The 160-page illustrated manual continues the instruction series first begun by the Bureau in 1913. Published by the U. S. Bureau of Mines, Department of the Interior, Washington 25, D. C. Price 60 cents per copy.

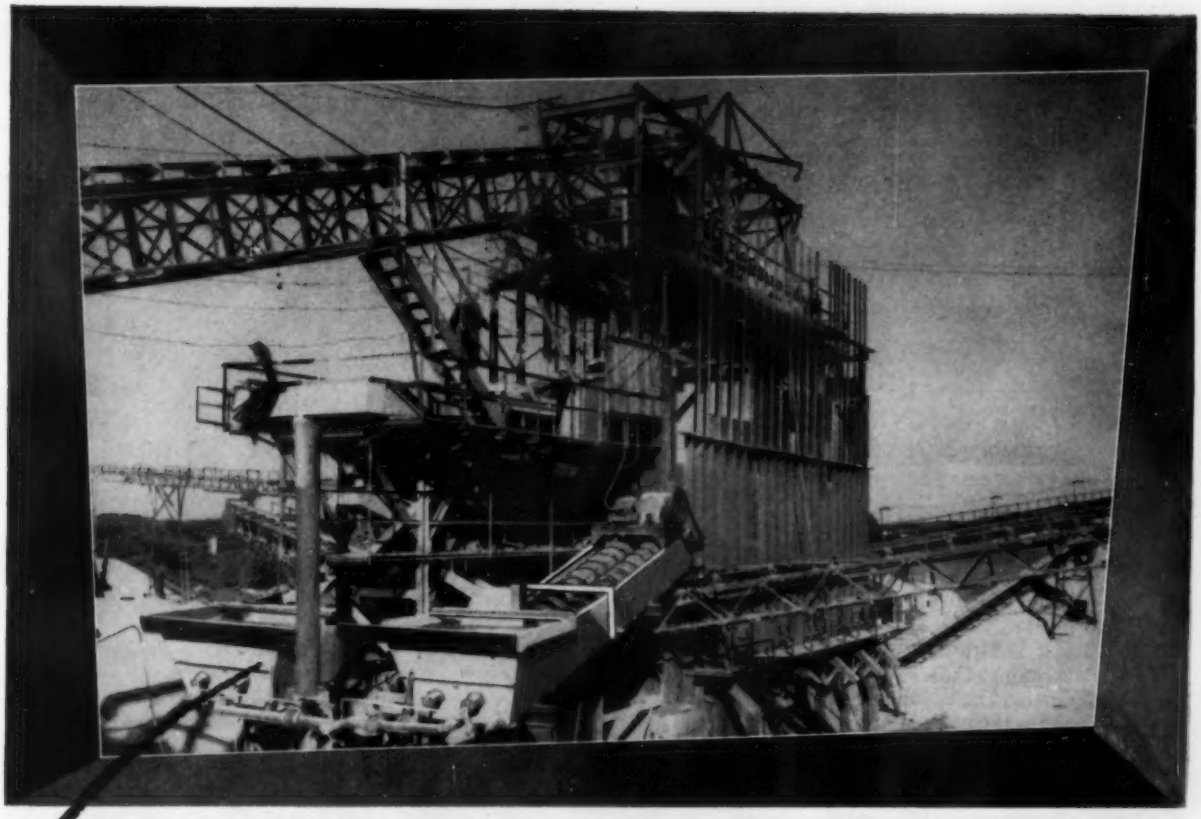
P.C.A. Makes Research Grant For Study on Tank Storage

The Portland Cement Association has made a $2,500 grant to North Carolina State College, Raleigh, N. C., to cover a year's research study on the subject of "Farm Storage of Liquid Fertilizer in Concrete Tanks".

According to Prof. G. W. Giles, head of the State College Department of Agricultural Engineering, the objective of the study will be "to investigate various materials for protecting concrete from the disintegrating action of liquid nitrogen fertilizer and to evaluate concrete tanks for the farm storage of this type of fertilizer".

Dr. Blaine F. Parker, who recently joined the faculty of State College, will conduct the new research study.

At Louisville, Ky., 80 employees of the Louisville Crushed Stone Company went off their jobs for 8 hours as a result of a work contract dispute. After negotiations by telephone between the officers of the AFL Truck Drivers Local 89 and management spokesmen an agreement was reached providing a wage increase of 15 cents per hour, and the men returned to work.



at Valley Sand & Gravel Co., **WAUKESHA, WISCONSIN**

EAGLE WASHER-CLASSIFIER-DEHYDRATORS

PRODUCE CLEAN, GRADED MATERIALS!

Today's aggregate demands clean, classified sand —the correct proportion of coarse sand and fine sand. Eagle equipment does the job better, faster and at lower cost per ton.

The busy, modern plant of Valley Sand & Gravel Co., Waukesha, Wis., depends upon Eagle equipment to process their sand—a 36" x 25' double screw long weir unit and a 30" x 25' double screw long weir unit—both fed by a 20' water scalping tank—each producing a different gradation of material. The Eagle Equipment was readily added to this plant with no disruption. Valley's is a dry pit operation, but Eagle Equipment functions equally well where material is pumped.

OTHER USERS OF EAGLE EQUIPMENT IN WISCONSIN

- Ivey Construction Co., Mineral Point
- Certified Aggregates Co., Hudson
- Art Overgaard, Elroy
- Consumers Co., Dousman
- Jentz Bros., Dunbarton
- Herb Turner, Bascobel
- Wissota Sand & Gravel, Fond du Lac
- Bock Bros., Highland
- Frank Mezera, Prairie Du Chien
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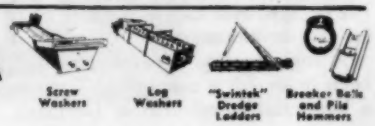
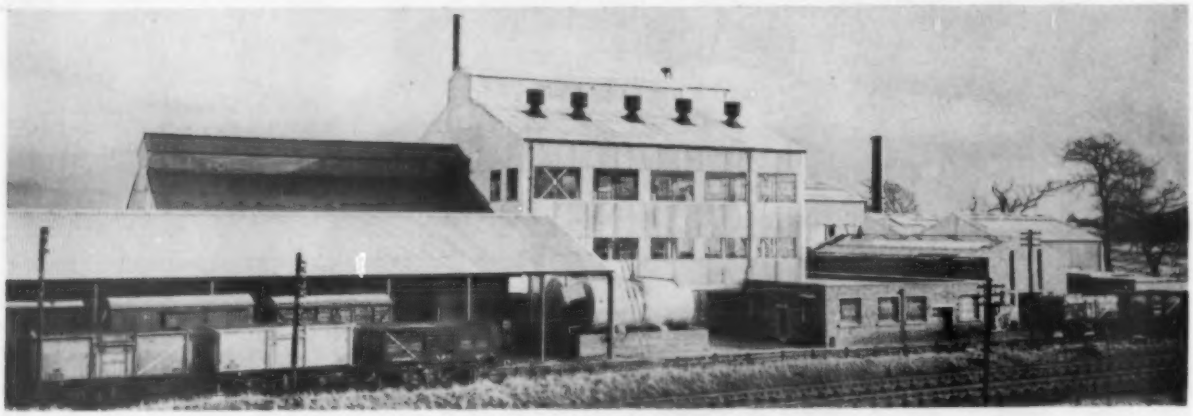


CAPE ASBESTOS COMPANY OPENS "ROCKSIL" PLANT IN BRITAIN



A general view of the new "Rocksil" plant of the Cape Asbestos Company, Ltd., at Stirling, Scotland.

another P and Q exclusive

By JOHN GRINDROD
B.A. (Com.)

BRINGING a new industry to Britain, Cape Asbestos Company, Ltd., opened a plant for the manufacture of "Rocksil" long-fiber wool on March 5 at Stirling, Scotland. Covering a floor area of 100,000 sq. ft., the plant was completed in 12 months, and current production is in the order of 10,000 cu. ft. of fibrous insulation per day. At present about 70 men are employed, but substantially increased numbers of employees are expected as development proceeds.

Although the existence of magnesian limestone (dolomite) in Argyll had been known for some time, the possibilities of its use had never previously been fully explored. Several hundred tons of the material were quarried just after World War II at Duror, on the south side of Loch Linnhe. This was tested for various purposes such as terrazzo, railway track ballast, scouring powders, and building materials, but none of these uses warranted quarrying on a large scale.

Having been interested in the development of a long-fiber mineral wool for a number of years, William Kenyon & Sons Ltd., heat insulation engineers, of Dukinfield, Cheshire, then began to take an active part in developing these resources in collaboration with the well-known Scottish geologist, Robert H. S. Robertson, M.A., F.G.S., of Glasgow. At about the same time they opened a deposit of diatomite in Loch Cuithir on the Isle of Skye and started a plant there for the development of this mineral.

A high-quality mineral wool had been made for a number of years by a long-established firm in Germany, and small quantities had been sold by the Kenyons in Britain. At the request of the Dukinfield firm, the German company readily agreed to cooperate in investigating the possibility of production in the United Kingdom.

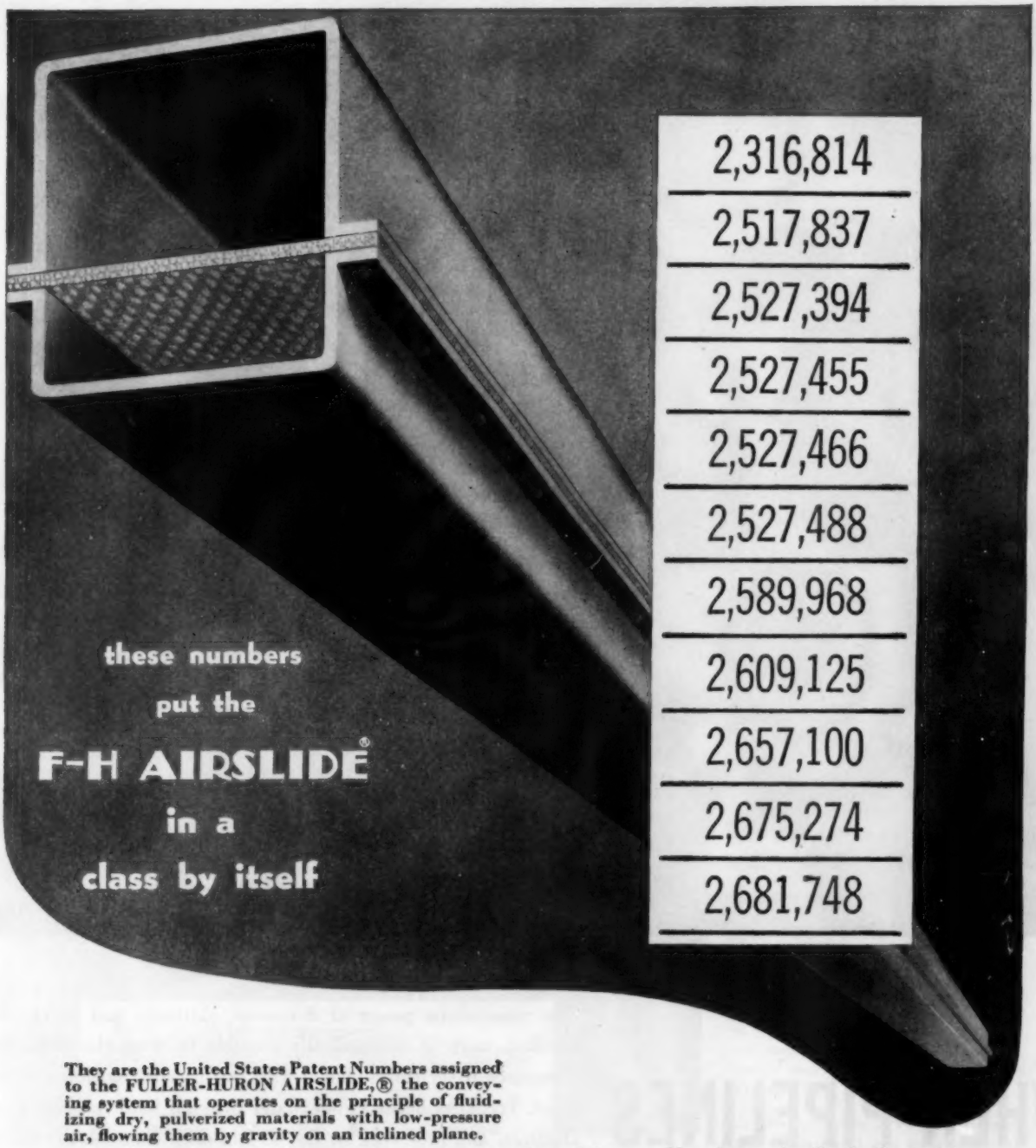
Kenyon & Sons then approached The Cape Asbestos Company, Ltd., with whom they had had friendly relations over a long period. Owning the largest asbestos mines in the Union of South Africa, Cape Asbestos has factories which make a full range of asbestos insulating materials, building boards, and brake linings in the United Kingdom, Italy, and South Africa.

Joint research showed that the product of reaction at very high temperatures between the Duror dolomite and a certain type of argillaceous rock (fireclay), found in Central Scotland, produced a white silken fiber of the highest quality. An agreement was reached whereby Cape Asbestos would manufacture this product, while William Kenyon & Sons would be sole distributors.

The Cape Asbestos Company secured rights for the Duror dolomite and made arrangements with Scottish Slate Industries Limited for the latter concern to quarry it. At present the dolomite is reduced to a reasonably uniform size at the quarry and then brought by rail for crushing and

(*Continued on page* 131)

Operators at the stitching machine which turns out "Rocksil" batts.



They are the United States Patent Numbers assigned to the FULLER-HURON AIRSLIDE,® the conveying system that operates on the principle of fluidizing dry, pulverized materials with low-pressure air, flowing them by gravity on an inclined plane.

Airslides have no moving parts, require no lubrication, little maintenance, and can usually be designed and installed to avoid structural obstacles or relocation of production equipment. They can be installed anywhere where there is adequate headroom to provide the necessary slope.

Hang Airslides overhead or put them in the basement, they'll cut your conveying costs to the noiseless minimum. If you're moving Portland cement, fly-ash, gypsum, lime, alumina, silica, flour, starch or materials of similar characteristics in bulk, you'll do well to let a Fuller engineer show you the saving way to do it.

If you like, we'll send you our Airslide Bulletin FH-2. Just ask for it, Fuller Company, Catasauqua, Pennsylvania.

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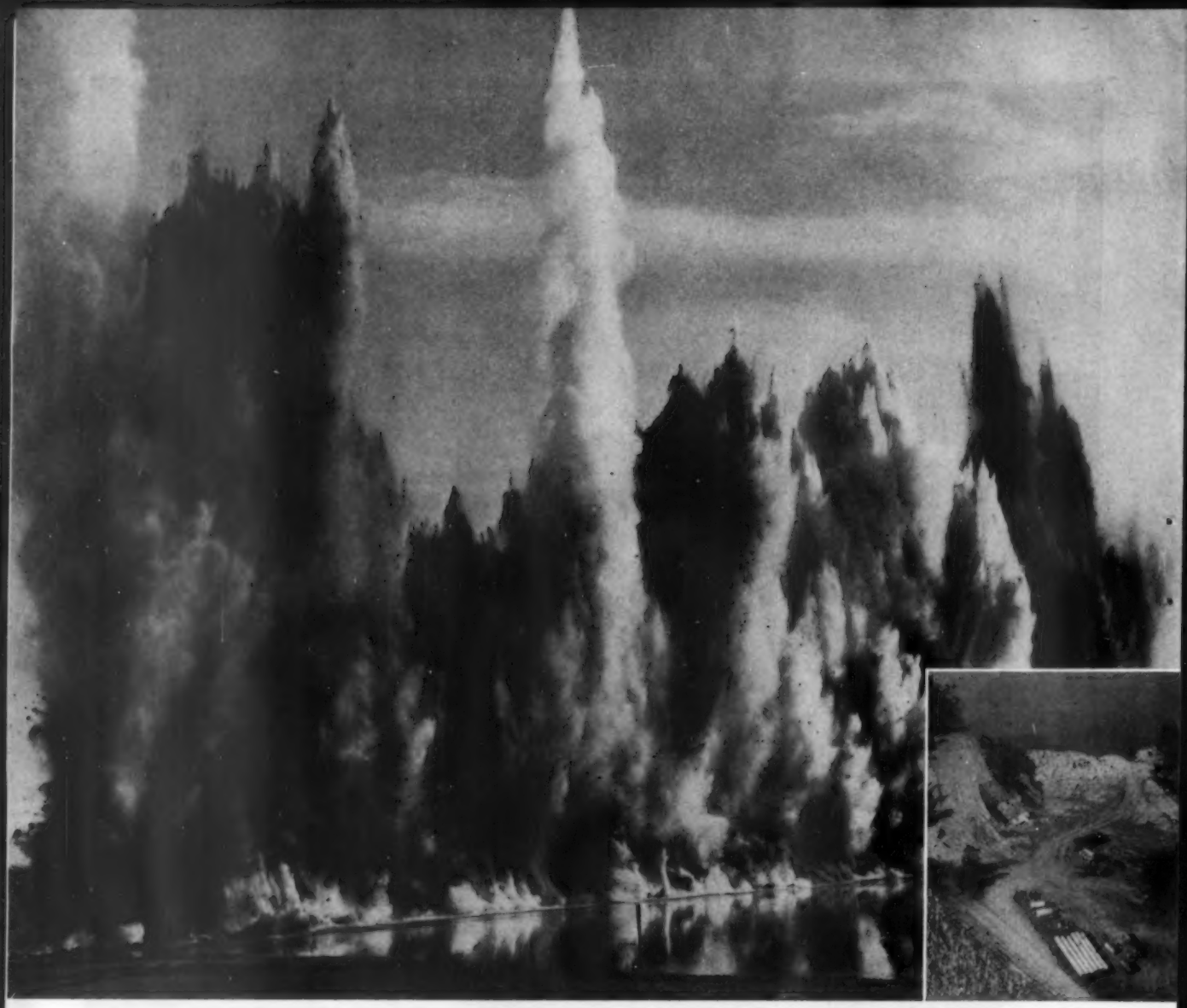

WHEN PIPELINES CROSS WATER

explosives research pays off

The tremendous power of dynamite, skillfully and ingeniously handled, made it economically possible to cross the wide, deep Tennessee River (inset above) with two parallel pipelines, 50 feet apart. Trenches blasted underwater through hard red clay in the shallows, and lime rock in the 40-foot-deep channel, opened the way for speedy dredging operations . . . another example of the efficiency of modern explosives and blasting methods.

Hercules' research in the pioneering and development of explosives and our extensive service facilities are available to help you in solving blasting problems on construction jobs or in mining and quarrying operations.

Explosives Department

HERCULES POWDER COMPANY

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XR54-6

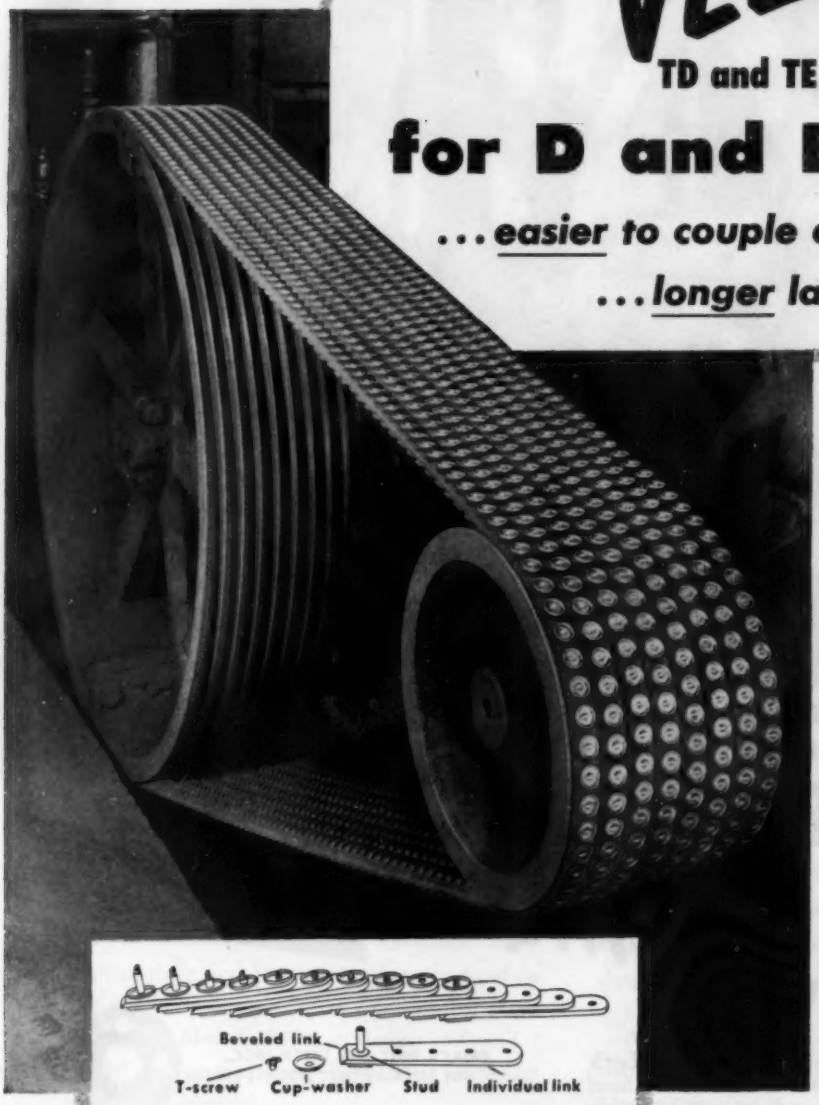
NEW VEELOS

TD and TE Adjustable V-belts

for D and E Drives

...easier to couple and uncouple

...longer lasting



This detailed line drawing of the new Veelos TD and TE v-belt makes it easy to see how this new v-belt is designed to do a better job... easier!

Now get the v-belt that's been especially developed for D and E drives—the new, patented Veelos TD and TE adjustable v-belt!

This new Veelos has advantages unmatched by any other v-belt. It is *installed quickly* without removing the outboard bearings found on most D and E drives. It is the easiest v-belt to couple and uncouple ever developed. Cup-washers and T-screws join links together to form individual belts of any length. Veelos TD and TE *lasts longer* because new high-tensile strength links plus the new stud, cup-washer and T-screw design give *added strength* —combines this added strength with *maximum flexibility* for cooler, smoother running.

Install this new Veelos TD and TE v-belt on your D and E drives. Prove to yourself why there's no v-belt that can match the performance, the efficiency and the economy of Veelos TD and TE.

Get the complete story of this great new v-belt for D and E drives. Send the coupon now for new 8-page illustrated catalog.

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V-BELT

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Please send copy of your new Veelos TD and TE v-belt catalog.

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TAPER-LOCK

A PATENTED PRODUCT OF DODGE

Hard job made easy!

Just a few turns of that little wrench and the Taper-Lock bushing loosens—the sheave slips off the shaft without a struggle. No hammer, no crowbar, no shock to bearings or machinery! Taper-Lock is easiest, quickest to mount—easiest, quickest to remove—yet it holds to the shaft with the firmness of a shrunk-on fit. The Taper-Lock bushing seats evenly along the entire length of the hub.

There is no collar—no protruding part—no flange to prevent uniform compression. Taper-Lock Sheaves always run true. Taper-Lock Sheaves are available from Distributors' stocks in a complete range of sizes in A-B combination, B, C, and D grooves.

DODGE MANUFACTURING CORPORATION, 4000 Union St., Mishawaka, Ind.

THERE'S ONLY ONE TAPER-LOCK, THE BUSHING THAT MOUNTS FLUSH!

Standardize, economize with Taper-Lock, the bushing that is interchangeable in Dodge sheaves, sprockets, couplings and conveyor pulleys. *More than 2,000,000 in use!*

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone directory, or write us.

DODGE

of Mishawaka, Ind.

6 MANITOWOCS Serve H. E. FLETCHER CO., Granite Quarry

ONE GOOD MACHINE deserves another—and so it has been at the H. E. FLETCHER CO., one of the nation's leading quarries. Since buying their first Manitowoc, 5 more went on the job at their huge West Chelmsford, Mass. quarry—3 Model 3900's, 1 Model 3000 and 1 Model 2000, where they have been replacing stationary derricks.

Equipped with 90' booms, they handle everything that comes their way—simply, accurately, safely. Stone breakage is held to a minimum, because of the precise control of a Manitowoc. Ready maneuverability permits them to be used all over the quarry and surrounding area.

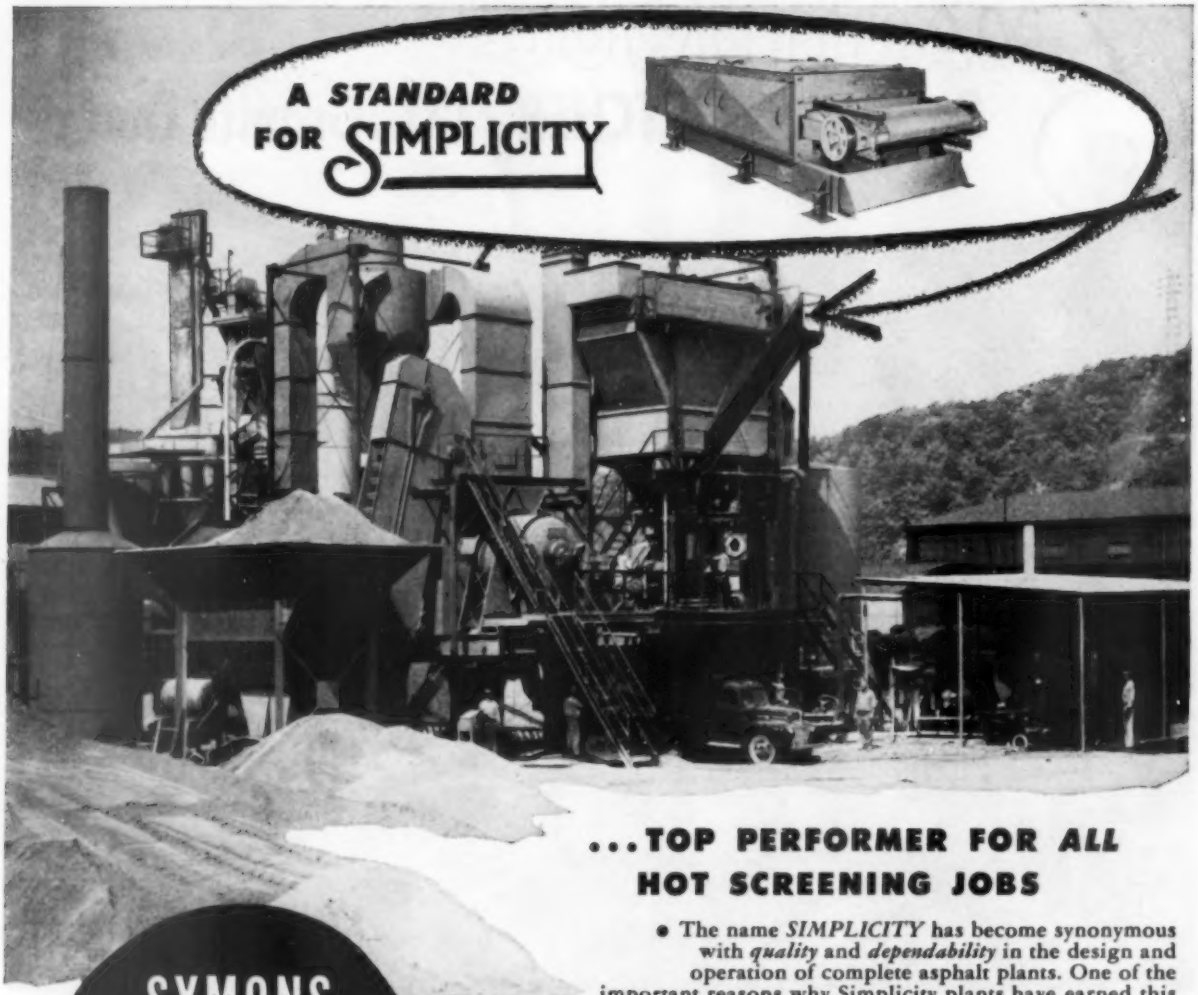
If you've never tried a Manitowoc, you'll be amazed at the difference in performance a Manitowoc will provide—a difference that can be seen and measured in faster operating cycles; greater productivity; less maintenance and down time; and far easier operation.

And remember, in a Manitowoc you can get the TORQUE CONVERTER, pioneered by Manitowoc for shovel operation—plus many other exclusive features and advantages no other machine offers. No wonder most everyone is switching to mighty Manitowocs.

MANITOWOC ENGINEERING CORP., MANITOWOC, WIS.

MANITOWOC

SHOVELS 1-5 YD. Speed Crane CRANES 18-100 TON



SYMONS TYPE F HORIZONTAL VIBRATING SCREENS

SYMONS . . . *A REGISTERED NORDBERG TRADEMARK KNOWN THROUGHOUT THE WORLD.*

. . . TOP PERFORMER FOR *ALL* HOT SCREENING JOBS

• The name *SIMPLICITY* has become synonymous with *quality* and *dependability* in the design and operation of complete asphalt plants. One of the important reasons why Simplicity plants have earned this reputation is the fact that the best possible materials and components are utilized in their construction.

Helping to assure complete dependability in these modern asphalt plants are Symons® Horizontal Vibrating Screens, which have been specified as standard equipment for all Simplicity plants for many years. Here's why:

The Symons Horizontal Screen is especially suited for "hot plant" screening. It is equipped with a dust tight enclosure so arranged that the driving mechanism is outside and away from the dust and heat. Since it sets level, accurate grading is assured. A level screen with its minimum headroom reduces plant height and conveyor length. In addition, there is less vibration to surrounding structures.

Follow the example of Simplicity and other leading asphalt plant manufacturers . . . specify Symons Horizontal Vibrating Screens for *all* hot screening jobs and be sure of accurate screening of material aggregates which means so much to the durability of asphalt pavements. *Clip the coupon for further details.*

NORDBERG MFG. CO., Milwaukee, Wisconsin

MAIL THIS COUPON TODAY

NORDBERG MFG. CO., Milwaukee, Wisconsin PQ

Please send me further information on the following screens:

☐ Symons "V" Screens ☐ Symons Rod Deck Screens
☐ Symons Horizontal Screens ☐ Symons Grizzlies

Name..... Title.....

Company .....

Address .....

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Increase Your Output up to 300%...

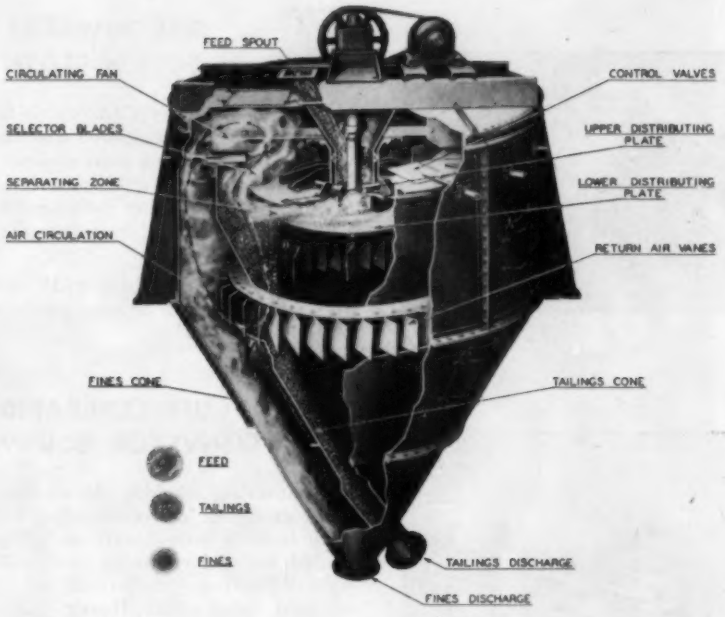
Get Accurate Fines with...

STURTEVANT

Whirlwind Centrifugal SEPARATORS

The Sturtevant Air Separator is one investment that pays off daily profits by increasing production and reducing costs. Its extremely efficient operation assures finer separation of fine material from coarse material with the result that uniform quality of product is always obtained.

They'll not only increase your output by as much as 300%, but provide 10 to 50% savings in power costs, too. They are available in sizes 3 to 16 feet in diameter with capacities from ¼ to 50 tons per hour with a fine-product range of 40 to 325 mesh or finer. Bulletin 087 gives the entire story. Write for your copy.

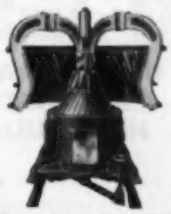


Other Sturtevant Equipment for Increasing Production and Cutting Costs

MICRONIZER® GRINDING MACHINE

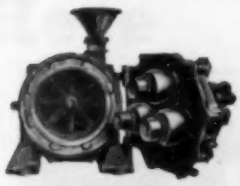
A fluid jet grinding machine, the Sturtevant Micronizer speeds reduction of materials to low micron sizes. These jet mills are especially applicable in fields where a particle size in microns is desired.

Sturtevant Micronizer grinding machines are available in many sizes and capacities.



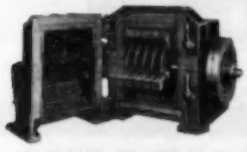
ROTARY FINE CRUSHERS

for intermediate and fine reduction (1" to ¼"). Open door accessibility. Soft or moderately hard materials. Efficient granulators. Excellent preliminary Crushers preceding Pulverizers.



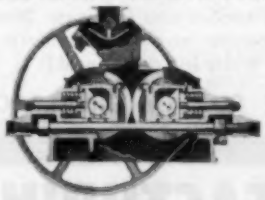
RING-ROLL MILLS

for medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operate in closed circuit with Screen or Air Separator. Open door accessibility. Many sizes. No scrapers, plows, pushers, or shields.



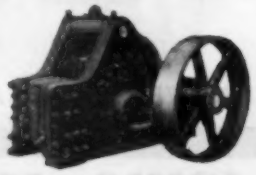
SWING-SLEDGE MILLS

for coarse and medium reduction (1" to 20 mesh). Open door accessibility. Soft, moderately hard, tough or fibrous substances. Built in several types and many sizes.



CRUSHING ROLLS

for granulation, coarse or fine, hard or soft materials. Automatic adjustments. Crushing shocks balanced. For dry or wet reduction. Sizes 8x5 to 38x20. The standard for abrasives.



JAW CRUSHERS

for coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Cam and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.

STURTEVANT MILL COMPANY

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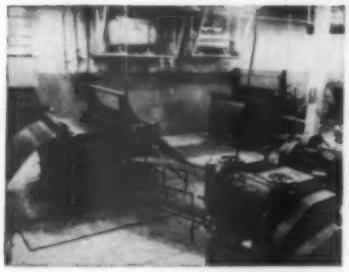
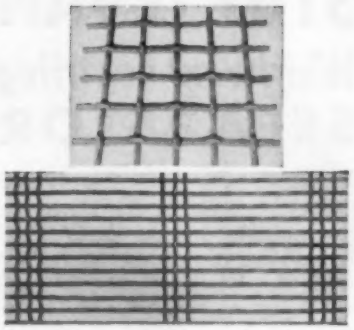
THREE GOOD WAYS TO CUT YOUR MAINTENANCE COSTS

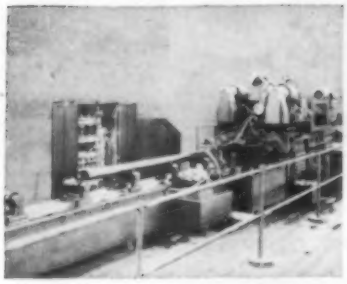


USE IOWEAVE SCREEN CLOTH

Ioweave is made by Cedarapids from a special analysis, oil tempered wire that will withstand fatigue and wear against abrasion. This high quality wire makes it possible to use a lighter gauge for a given size of opening, thus greatly increasing the tonnage output.

Ioweave is available in a wide range of sizes and weaves to fit your needs. Write for Bulletin CS-4.





USE CEDARAPIDS CONVEYOR EQUIPMENT

The automatic machine shown here turns out a complete conveyor idler every 28 seconds with permanently sealed, oil lubricated, heavy duty, single row, self-aligning ball bearings which eliminate the need for field lubrication. Heavy gauge steel tubing rolls insure perfect and constant balance. Cedarapids conveyor troughing roll assemblies and return idlers are available in widths from 14″ to 48″. Write for Bulletin CON-1.

USE CEDARAPIDS MOTORIZED HEAD PULLEYS

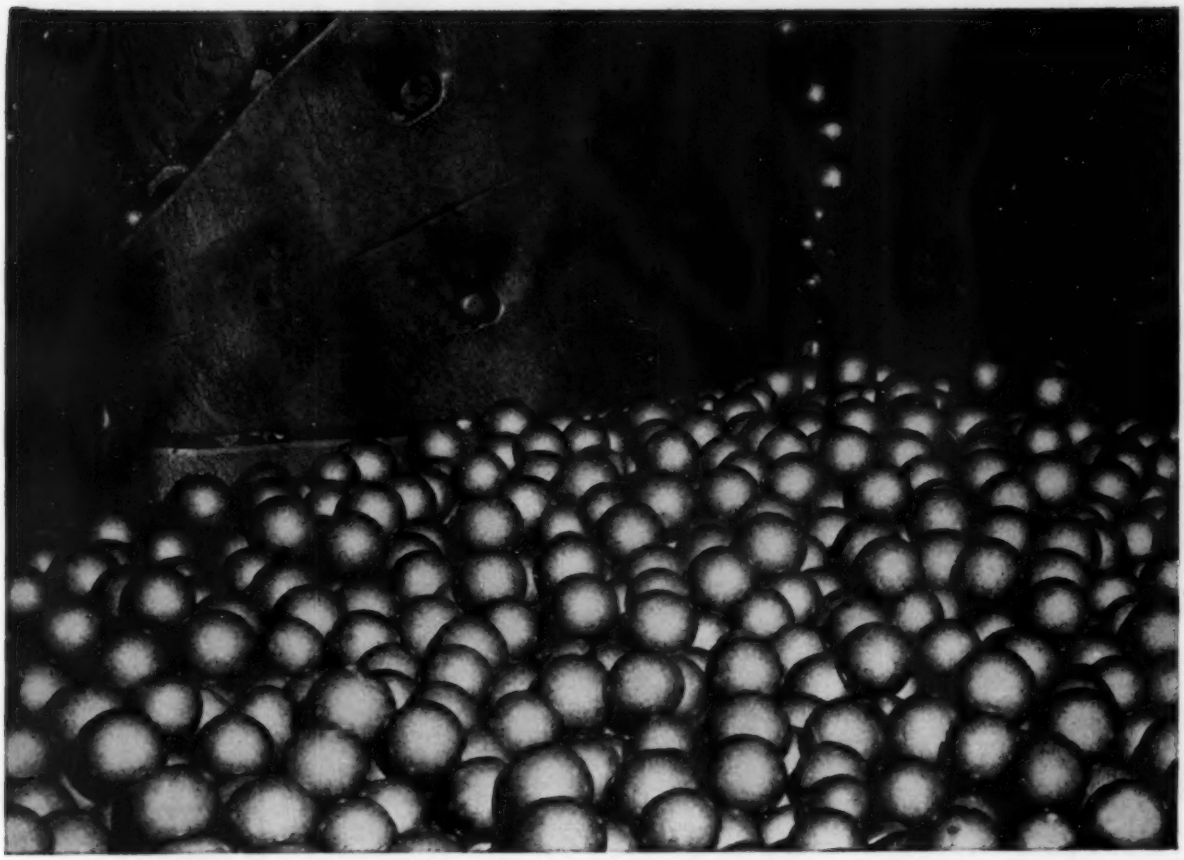
You can cut your conveyor maintenance costs 70% to 90% by installing Cedarapids Motorized Head Pulleys. All the drive mechanism is contained inside the pulley shell so there are no chains, sprockets or sheaves out in the weather and dirt, no chain idlers to keep adjusted and oiled, no V-belts to adjust or replace, no shafts and drives to service and lubricate. Modernize your conveyors now with Motorized Head Pulleys. Write for Bulletin MP-1.

ALL ITEMS ALSO AVAILABLE FOR ORIGINAL EQUIPMENT MANUFACTURERS

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U.S.A.

The Cedarapids Line also includes: ***Portable and stationary crushing, screening and washing plants for stone, gravel and sand. Vibrator and revolving screens. Feeders. Hammermills. Double impeller impact breakers. Batch type and continuous mix type bituminous mixing plants. Driers. Dust Collectors. Vibrating soil compaction units.***



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GRINDING BALLS

Sheffield copper molybdenum alloy steel grinding balls are manufactured by automatically controlled methods which produce a ball of finer, denser, more uniform structure.

Moly-Cop balls wear evenly and retain their spherical shape longer. They have greater hardness for wear and toughness to resist spalling and chipping. This all adds up to high production rates with less down time, less charging and less power.

Moly-Cop grinding balls can make an important net saving in your grinding cost.

If you have not already proven the value of Moly-Cop balls, get in touch with us before making your next purchase.

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SHEFFIELD PLANTS: HOUSTON KANSAS CITY TULSA

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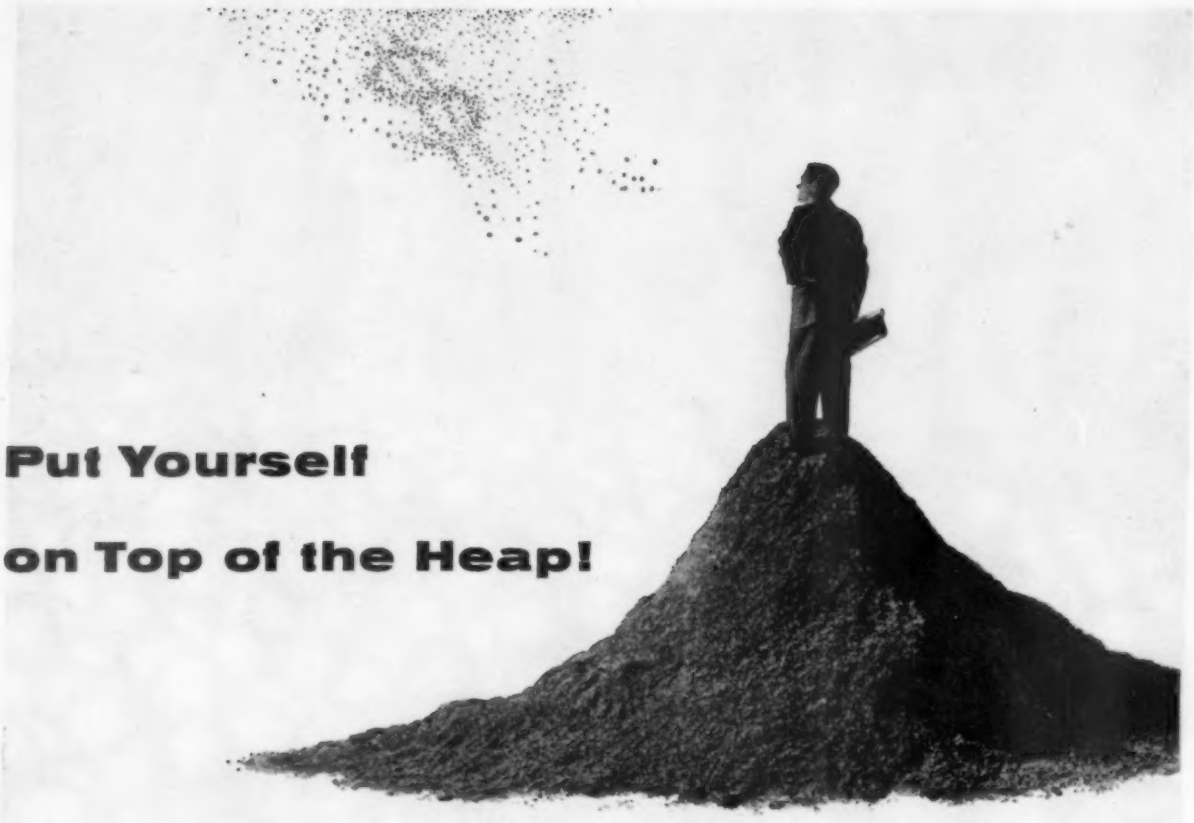


Put Yourself on Top of the Heap!

You can collect big money simply by collecting the valuable dust that's usually wasted in your plant's operations!

How much? Buell equipment frequently collects as much as 40 tons a day. Convert that into cash and you can see what you're missing!

Buell specialists have developed three different types of dust collection equipment. The right equipment to handle *any* dust collection problem. Each is carefully tailored to meet your individual problem. Actually, each problem is different—each solution must be different to meet the many variables.

Buell equipment has set truly amazing records for efficiency . . . for low maintenance . . . for versatility. Why settle for less than the best? Write Buell Engineering Company, Dept. I-18, 70 Pine Street, New York 5, N. Y.

buell

MECHANICAL ELECTRICAL

20 Years of Engineered Efficiency in

DUST RECOVERY SYSTEMS

The Davis

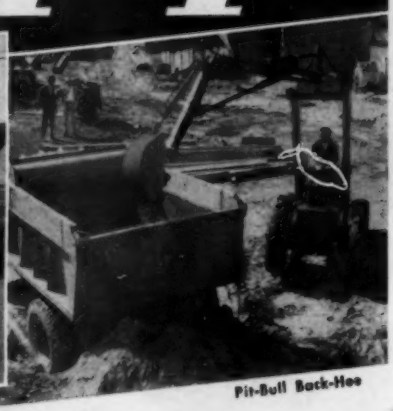
Pit Bull

Patent Pending

Replaces... HIGH-INVENTORY EQUIPMENT 11 TO 1

Pit-Bull Loader

Pit-Bull Broom


Pit-Bull Back-Hoe

11 Attachments... to 1 Basic Unit

Trencher

Fork Lift

Dozer

Hammer

Swinging Crane

Loader

Post Auger

Cab Attachment

Rotary Mower

Model 100 Loader

Here is a low-cost single unit that fits Ford or Ferguson tractors with 11 attachments that replace high-cost industrial machines.

Any of the attachments can be fitted to the basic ***Pit-Bull*** unit in only a few minutes, and another job is underway with the same operator at the finger-tip controls.

the PIT-BULL

- ★ *Cuts Labor Cost*
- ★ *Cuts Idle Labor Time*
- ★ *Cuts Idle Equipment Time*
- ★ *Cuts Heavy Equipment Inventory*
- ★ *Cuts Heavy Equipment Transportation Cost*
- ★ *Cuts Heavy Equipment Maintenance Cost*
- ★ *Cuts Heavy Equipment Operational Cost*

...Now, Look at Your Profit Margin

The basic ***Pit-Bull*** hydraulic power unit is attached to your Ford or Ferguson tractor by your dealer. This includes the installation of a syncro-mesh transmission with underdrive, providing four speeds in either direction and permitting you to change direction without shifting gears.

The driver's seat and steering controls are reversed, and ***Pit-Bull*** control levers installed so that the operator can manipulate the unit hour after hour *with ease and comfort.* This rear conversion enables the operator to maintain simultaneous control over the hydraulic operation and the tractor as well as to have a perfect view of the working area.

Attachments can be changed in a matter of minutes, and you buy only the attachments your particular job or operation requires. *See your dealer.*

The Davis Pit-Bull is manufactured by the makers of the Davis Model 100 Loader, America's quality front-end tractor loader.

SEND THIS COUPON FOR FREE LITERATURE

MID-WESTERN INDUSTRIES, INC.
1009 S. WEST ST., DEPT. Q
WICHITA, KANSAS

Send me literature on the Pit-Bull ☐ I would also like literature on the DAVIS Model 100 Loader to fit a _____ tractor.

NAME _____

ADDRESS _____

CITY _____ STATE _____

PB-3

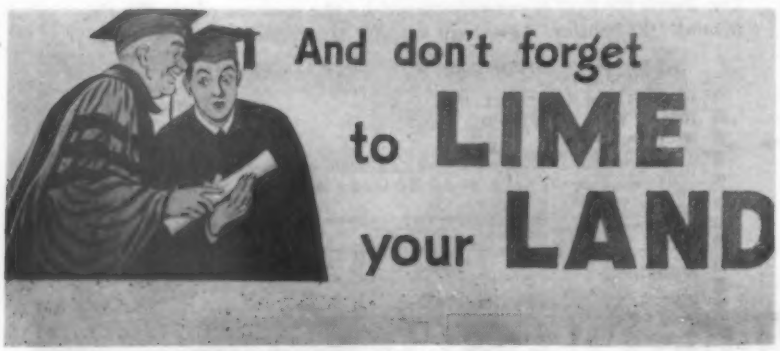
MID-WESTERN INDUSTRIES, INC. 1009 SO. WEST STREET WICHITA, KANSAS

Billboard Advertising Helps To Sell Agricultural Limestone to Farmers

Billboard poster No. 1 (November and December, 1954).

Billboard poster No. 2 (January and February, 1955).

Billboard poster No. 3 (March and April, 1955).



Billboard poster No. 4 (May and June, 1955).

THE agricultural limestone industry is again faced with the problem of selling the farmer on the obvious needs of his soil. Liming pays back its costs many-fold, but farmers are reluctant to make the necessary initial investment, especially in times of low income. Now adequate government assistance is available, and it is up to the agstone producers to get the farmers to use it.

Under the leadership of Clint A. Allen, executive-secretary, the Iowa Agricultural Limestone Association, Inc., has carried out an impressive billboard advertising campaign for the last four years, which is still going strong. The association prepares the attractive posters, and makes them available not only to the Iowa producer-members, but also to any other agstone producers. Up to the present time nearly every Iowa producer and several producers from other states have taken advantage of this form of advertising. Anyone interested can receive full information and contract forms by writing to Mr. Allen at 400-401 Teachout Building, Des Moines, Iowa.

Recently a new series of billboard posters for the year was prepared by the Iowa group; these are now available to producers. In past years the series consisted of six posters but this year there are seven in order to get the program on a full calendar year basis. These posters, which are 12-ft. by 25-ft. in size and attractively colored, are illustrated here. Each poster is to be run for a two-month period, beginning November 1, 1954, and extending through December 31, 1955. There is a space at the bottom of each poster for the company's name and location to be printed in black letters approximately 20 in. high. The Iowa association also prepares these name imprint strips.

A producer who is interested in this form of advertising should first contact an outdoor billboard company in his area and contact for a location or locations of his choice. He then can order the seven posters and name imprint strips from the Iowa association, which sends them directly to the billboard company. From then on and for a period of a year (14 months in this instance), the advertiser's quarry and his pro-

ducts will be advertised daily. In order to insure a good location, the producer is urged to contract for billboard space several months before the series is to begin.

The total cost of the poster and the rental of billboard space averages less than one dollar a day. Since the Iowa association prepares the posters and the billboard company installs and services them, this method of advertising certainly requires less effort and attention than most other forms of advertising. In fact, it can be aptly labeled the "lazy man's way" of advertising.

The seven posters for the coming year are attractively colored, and each has an appropriate message for the time of year it is displayed. Poster No. 1 (for November and December, 1954) is a new idea, carrying no advertising and showing the Nativity Scene in the true Christmas spirit. The other posters are all timed to the seasons and carry appropriate messages. Poster No. 4 will appear on the highways around high school and college graduation time; No. 7 is another appropriate holiday scene.

The company's name imprint at the bottom of the poster immediately below the picture is in black lettering and is easily read at a considerable distance. To keep the name of the company or quarry in type as large as possible, the Iowa association recommends that excess wording, such as telephone numbers and locations, should be held to the minimum.

Billboard poster No. 5 (July and August, 1955).

Billboard poster No. 6 (September and October, 1955).

Billboard poster No. 7 (November and December, 1955).

Cape Asbestos "Rocksil"

(*From Page* 118)

preparation at Stirling. It is planned, however, to install a crushing plant on the hillside beside the quarry and also a compressor plant to provide compressed air for the pneumatic drills. A small-gauge railway is also to be built, so that the rock can be taken away in small wagons.

Coming from a famous fireclay area in Central Scotland, some 10 miles south of Stirling, the argillaceous rock is found about 200 ft. below the surface and is recovered by modern mechanical methods of underground mining. It is finely ground before being sent to Stirling.

In January, 1953, Cape Asbestos acquired the old Thistle Glass Works at Stirling together with adjoining land. Around the original small facilities were built various larger structures, converting the premises into a modern plant layout.

The manufacturing process consists in mixing the raw materials in their correct proportions and bringing the carefully-blended natural rock, which is basically siliceous, to a temperature of 2,800 deg. F. in a large furnace. At this white heat the molten mass is extruded by a steam process into silken filaments of controlled diameter and length and high tensile strength to make a white, resilient, fleecy mass of fibers of very low density. Fiber length and diameter are respectively of the order of 2 in. and 10 microns. In the spaces between the felted fibers of "Rocksil," completely interlocked in every direction, millions of air pockets are entrapped and stabilized.

In this form of fine strands the "Rocksil" falls down a shaft to the floor below the furnace and is collected into a broad mat. This is made up as required, either loose or in rolls 36 in. wide between paper. An 11¼-yd. length weighs 28 lb., or it may be had in specially packed form according to the insulating purpose for which it is required. For example, it is made up into mattresses with wire or metal envelopes or in sewn and quilted sheets.

The new plant at Stirling is the second Scottish enterprise of Cape Asbestos. Last year the company, jointly with the Johns-Manville Corporation of America, installed a large plant at Germiston, Glasgow, for the production of "Marinite," an incombustible boarding for ships' joinery work.

BRAND NEW!

Our new hard-facing manual has separate sections showing typical hard-surfacing applications in SEVEN basic industries. Every procedure job proved.

Tells which alloy to use and how to apply it.

Describes complete line of Victor alloys for gas or electric manual and automatic welding.

Printed on heavy paper with durable covers, for field use.

GET YOUR FREE COPY NOW

Mail Coupon Today

Victor Equipment Company,
Alloy Rod & Metal Division
11440 So. Alameda St., Los Angeles 59, Calif.

Gentlemen: Send my free VICTOR hard-surfacing manual. I need sections covering:

- ☐ *Brick and clay*
- ☐ *Cement*
- ☐ *Coal mining*
- ☐ *Dredging*
- ☐ *Earth moving*
- ☐ *Metal mining*
- ☐ *Rock products*

Name_____

Position_____

Company_____

Address_____

City_____ State_____

TYPICAL MANUAL PAGE

Illustrates the part (1) . . . the alloy Victor recommends (2) . . . and how to apply it (3)

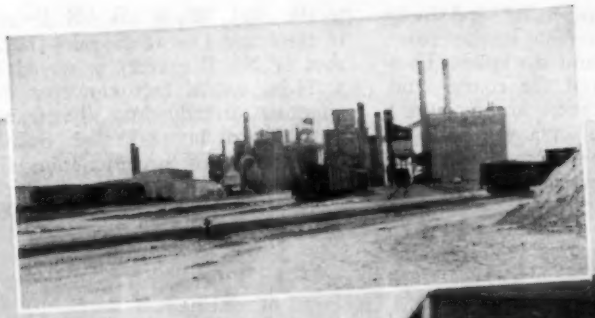
Profitable dealerships open; inquire now!

VICTOR
for welding

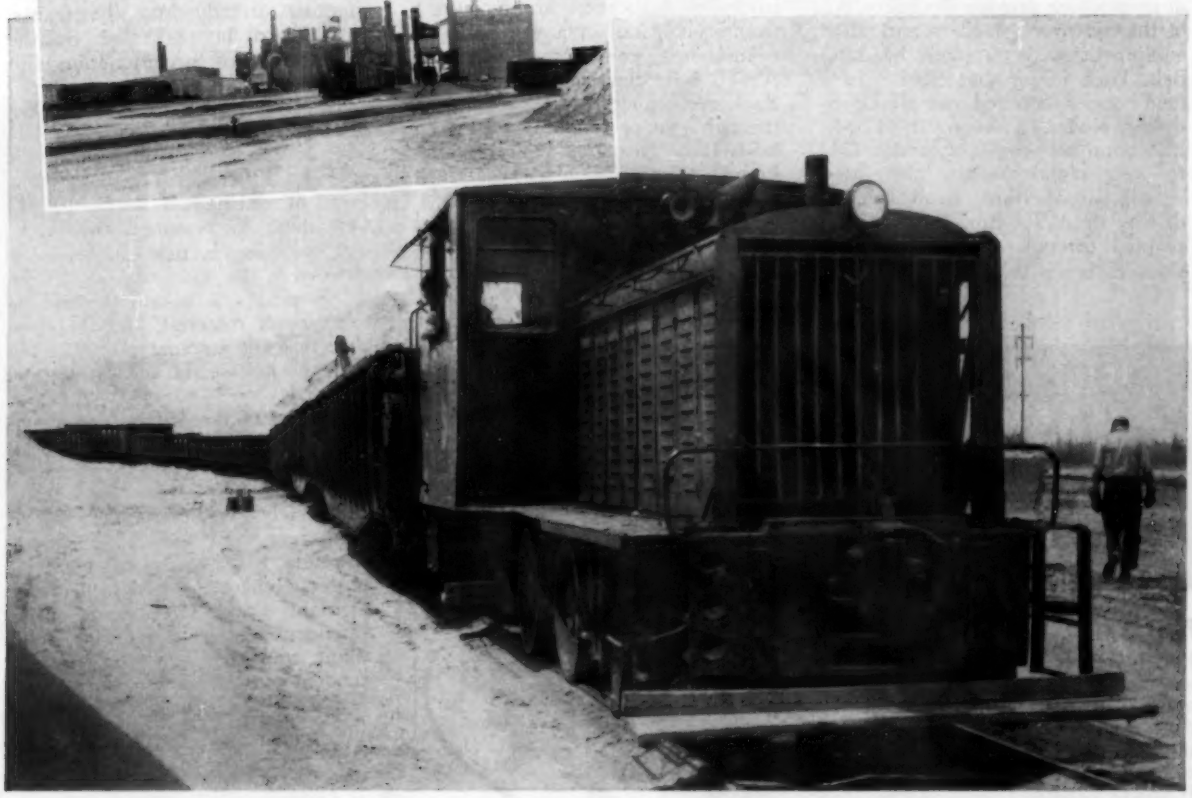
12-H

VICTOR EQUIPMENT COMPANY
ALLOY ROD AND METAL DIVISION
11440 So. Alameda St. • Los Angeles 59

Mfrs. of welding & cutting equipment; hardfacing rods; blasting nozzles.



View of plant and portion of track system at Maple Grove.



25 Year Old Plymouth Repowered with TORQOMOTIVE DRIVE

In 1929 this 6 wheel, 30 ton Plymouth went into service at the Maple Grove, Ohio Works of Basic Refractories, Inc. Working up to 425 hours per month, this gasoline powered, mechanical drive locomotive replaced steam power for hauling, spotting and switching railroad cars at the large refractory plant yards.

In 1950 a Plymouth Diesel-Torque-Converter Repower unit was installed in the locomotive along with other alterations. Mr. A. M. Caito, Works Manager, reports the Diesel-Torqomotive conversion greatly improved operating qualities. Maximum power application with minimum wheel slippage, simplified controls, reduced service time and repairs are some of the main advantages gained. In addition, the Plymouth can now be used for double heading with other motive power when needed.

Plymouth-engineered Repower units have been installed in many older model Plymouth Locomotives. If you are operating an older Plymouth with its original engine and transmission, investigate the advantages and savings a Torqomotive-Repower unit makes possible. If you are not now using Plymouth on your trackage, write today for our complete catalog on 3 to 70 ton Plymouth Locomotives. They are available in gasoline and Diesel mechanical, gasoline and Diesel-Torqomotive, or Diesel-electric drives. Write to Plymouth Locomotive Works, Dept. A-15, Plymouth, Ohio.

Also manufacturers of F-R-H Ceramic Machinery

PLYMOUTH® TORQOMOTIVES

Shiely Builds Gravel Plant

(*From page 77*)

The yard has two major identical conveying units, plus a few additional units which provide flexibility. All of the conveyors, stackers, and allied equipment were supplied by Link Belt. Each major unit consists of a field hopper mounted over a reciprocating feeder, a 24-in. by 120-ft. horizontal belt conveyor, and a 134-ft. long radial stacker, also fitted with 24-in. belting. Each stacker, driven by a 7½-hp. gearmotor, is pivoted through a 240-degree arc. One stacker is used to build up the 1½-in., ¾-in., and coarse sand stockpiles, the other to build up the coarse sand and fine sand stockpiles. Thus both stackers feed the coarse sand stockpile. Aggregates are reclaimed from each of four stockpiles by 24-in. tunnel belt conveyors housed in Armco 8-ft. diameter tunnel liners. Each reclaiming belt conveyor, fed through two or four gates, in turn leads to a 25-ton or a 50-ton yard hopper, which is then used for truck loading.

To accommodate other gravel sizes, the firm has additional but smaller stockpiles located adjacent to the dock. These are fed directly by the crane. One of the piles (buckshot or No. 8 gravel) is served by a 24-in. tunnel belt conveyor discharging directly into the trucks. Small yard hoppers, fed by the cranes, are used in conjunction with the other stockpiles.

The barge yard also has a modern combined scale house and office. The scale used is a Fairbanks Morse unit having a 50-ton capacity and a platform measuring 50 ft. in length. One interesting feature of the weighing operation is that the shipping clerk sets the tare weight of the truck, pushes a button designating the type of material, and the shipping ticket is automatically stamped with the net weight and the type of material.

Officers of the Shiely firm are as follows: J. L. Shiely, president; A. R. Shiely, executive vice-president; J. L. Shiely Jr., vice-president; J. M. Shiely, vice-president; E. W. Alm, treasurer; and H. J. Farrell, secretary. S. T. Harrison is chief engineer, Robert C. Shiely, operations assistant, Frank H. Googins, superintendent of the Grey Cloud Island plant, and A. O. Nelson, superintendent of the Pig's Eye Yard.

J. L. Shiely is a past president of the National Ready Mixed Concrete Association (1936) and a former director and treasurer of the National Sand and Gravel Association; he was the subject of this magazine's "Men of the Industry" article (February, 1954, p. 68). A. R. Shiely was 1953 president of the N.S.G.A.

The company also operates a limestone quarry at Mendota, Minn., a granite ballast quarry at St. Cloud, Minn., and a gravel plant near Greene, N. D. The latter plant supplies coarse concrete aggregate for the Garrison dam project.

Western Mining Corporation Building New Plant in Idaho

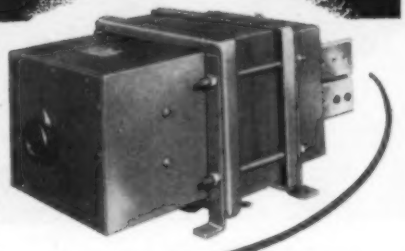
The new plant of the Western Mining Corporation, a venture for processing vermiculite and perlite ore, is under construction at Nampa, Idaho, with completion scheduled this summer. Vermiculite ore will be brought from near Bozeman, Mont., and perlite from Owyhee County, Idaho, for final processing into a lightweight aggregate to be known as Micalite. The plant is to have a 50-ton-per-day capacity. It is equipped with roller conveyors and mechanical stacking, and will include a research laboratory.

Officers of the firm are Carl LeConto, president, Frank McGovern, vice-president, and Ted Miler, assistant, all from Boise, Idaho.

LET THE RECORDS SPEAK!

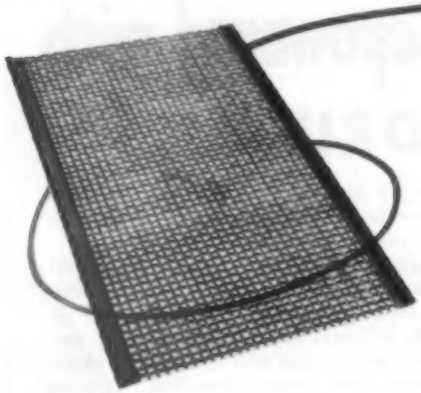
HANCO SCREEN HEATERS

ELIMINATE *Costly* SCREEN BLINDNESS



FASTER, MORE ACCURATE SIZING

HANCO electric heaters are engineered to meet top capacity requirements for heating **all** metallic screen cloth. Mechanical abuse such as "beating" or brushing can be **eliminated completely** when you install a HANCO electric heater. Treat your screens the modern way – get HANCO.



Available in five different assemblies. HANCO engineers have designed and constructed electrical screen heaters to fit YOUR make of screen. Note: Reduction in openings can be effected to meet ever changing specifications.

LOOK AT THESE FEATURES

Faster screening—faster processing means fewer "returns".

Elimination of mechanical abuse to keep screens open.

Longer screen life — no manual cleaning increases screen life up to 800%.

Fewer shut downs for replacement of worn screens.

HANCO quick change assemblies assure easy cloth changes.

Low maintenance cost. HANCO heaters are designed for heavy-duty service.

SEND FOR OUR COMPLETE BULLETIN

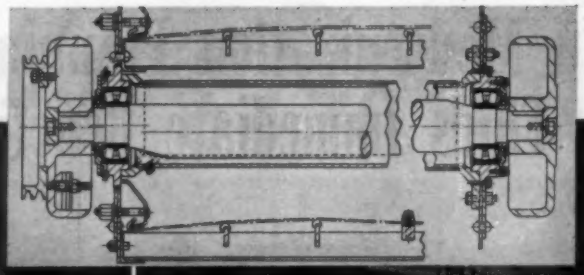
Hanco

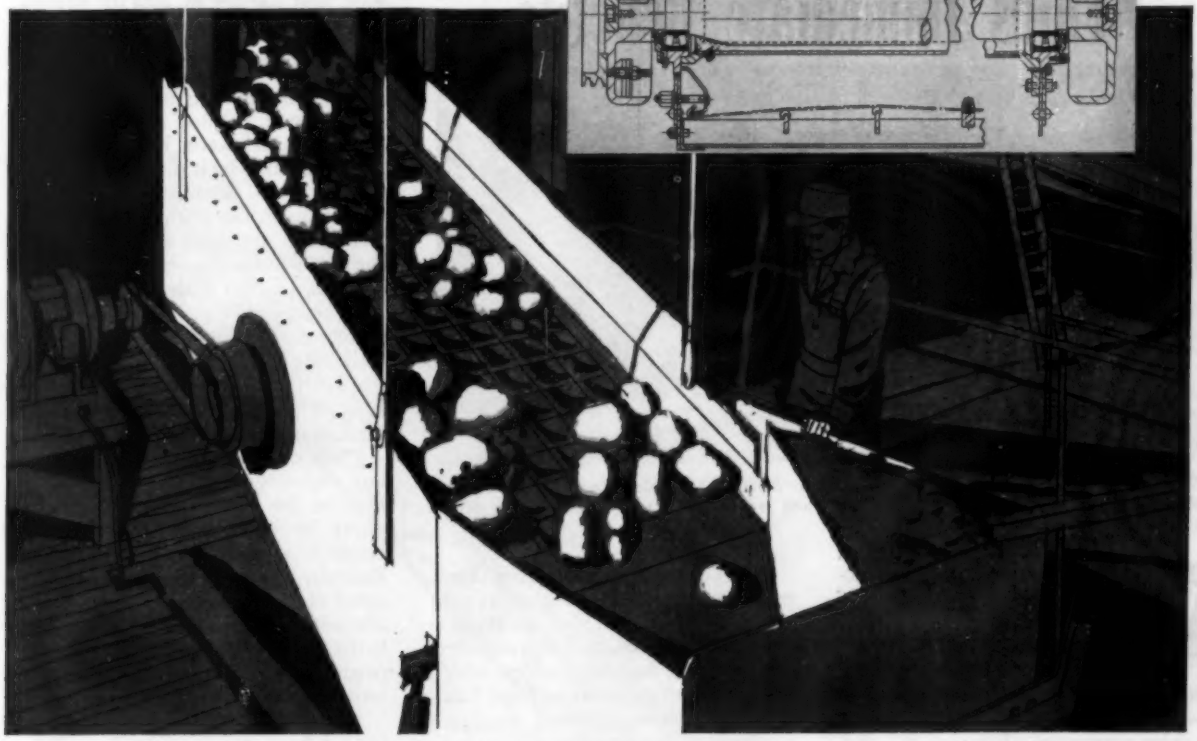
F. R. HANNON & SONS

1605 Waynesburg Rd. S.E., Canton 7, Ohio

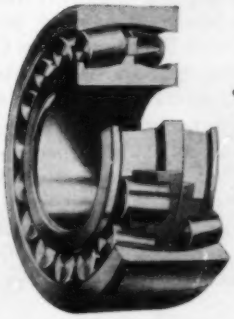
PIONEERS IN ELECTRIC SCREEN HEATING – FIRST IN THE FIELD OF LOW VOLTAGE AND HIGH AMPERAGE SCREEN HEATING

The centrifugal force which produces the perfect circle motion of Ripl-Flo Heavy Duty Vibrating Screens, manufactured by Allis-Chalmers, is imparted through precision-ground, self-aligning TORRINGTON Spherical Roller Bearings.





Solving toughest bearing problems!



Tough bearing problems are encountered in the design of heavy-duty vibrating screens. Leading builders have found the answer in TORRINGTON Spherical Roller Bearings.

Self-aligning, these rugged TORRINGTON Bearings compensate for minimum shaft deflection. Bearing capacity remains constantly at peak value. Bearing wear is greatly reduced.

Precision-ground from heat-treated high-alloy steels, TORRINGTON Spherical Roller Bearings cut friction to a practical minimum. Power flows smoothly and efficiently on high conformity surfaces. Bearing life is lengthened and daily tonnages climb.

Features like these solve the toughest bearing problems not only in vibrating screens but also in pulverizers, grinding mills, crushers and rotary kilns.

Always use TORRINGTON Spherical Roller Bearings!

THE TORRINGTON COMPANY
South Bend 21, Ind. Torrington, Conn.

TORRINGTON SPHERICAL ROLLER **BEARINGS**

Spherical Roller • Tapered Roller • Cylindrical Roller • Needle • Ball • Needle Rollers

Ohio Producer Looks Ahead In Modernization Planning— Finds Immediate Benefits

Scene at the Laura Stone Company's plant near Phillipsburg, Ohio. Fines, coming through the scalping screen are stockpiled at the left and reclaimed for use by neighboring county road organizations.

another P&Q exclusive

WITH commendable foresight, the management of Laura Gravel and Stone Company, of Phillipsburg, Ohio, has recently completed a major modernization program that will step up production to permit taking maximum advantage of a projected road improvement program in the Dayton, Ohio, area. That these men are, indeed, far thinking individuals, is evidenced by the fact that the four-lane highway scheduled to be constructed on the present route of U. S. No. 40 will not be under way until 1956!

From the truck dump, virtually the entire operation can be seen, only the fines stacker being masked by the primary crusher housing at the left.

Officials of the firm have, however, realized an immediate benefit in the way of *tripled* production through the installation of a complete belt conveyor handling system which replaces their previous railroad haulage. The conveyor system, produced by Barber-Green Company of Aurora, Ill., was jointly engineered by the manufacturer, Rish Equipment Company of Dayton, and Rish's engineering headquarters at Roanoke, Va.

This company, which takes its name from an earlier operation at Laura, Ohio, began operation in the mid-1920's on a 200-acre tract near Phillipsburg, where the limestone deposits lie in a depth of at least 66 ft., and probably deeper. Almost 170 acres of this area is still unworked, insuring an ample reserve of material for many years, despite the phenomenal step-up in production. Production of crushed limestone was first undertaken on this site in the 1890's; but work was abandoned almost as soon as it was begun, and the deposit was not worked again until the present company took over in 1924.

Until the modernization program was put into operation, the limestone was blasted, loaded into three-car trains which were hauled several hundred yards by a diesel locomotive to the plant. Here the cars were drawn up to the primary crusher by a cableway, dumped, and returned to the rail line by gravity.

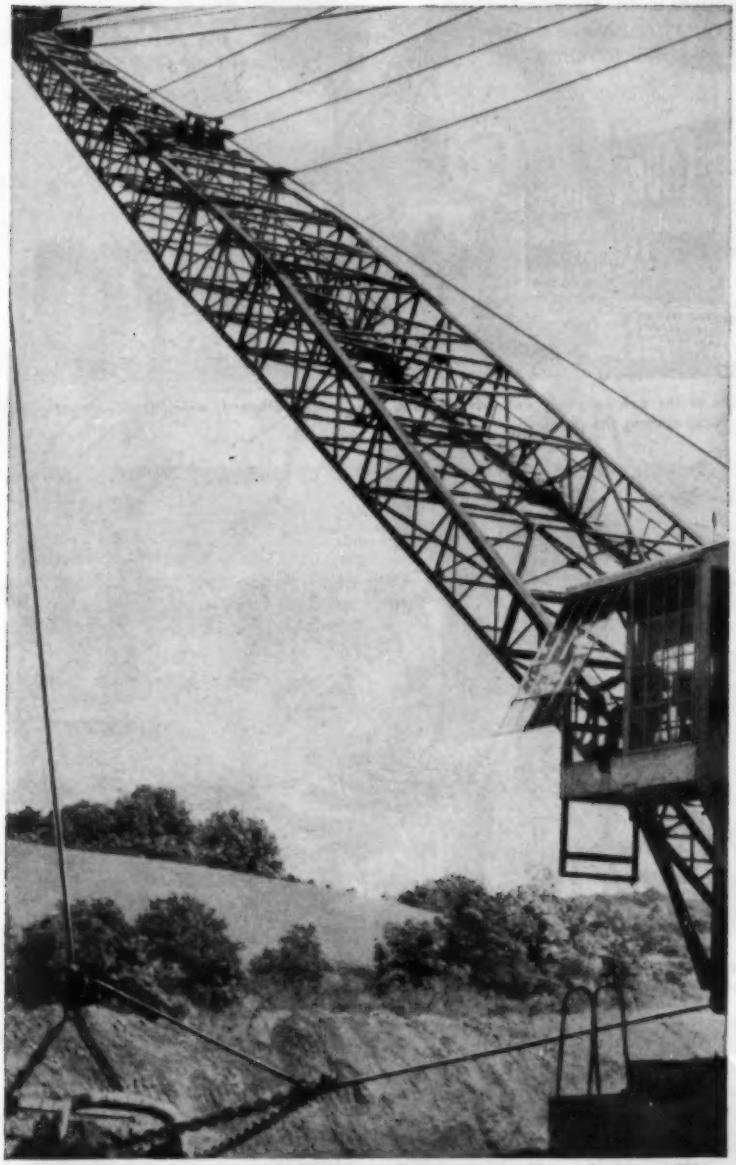
Realizing that their existing facilities would not be equal to the desired increase in production, company officials, late in 1953 entered upon the modernization program which has resulted in the tripled production mentioned earlier.

Plant crushers are presently set at low capacity to produce fine sizes. Despite this, each 8-hour shift produces in excess of 1,300 tons of crushed, screened, and sized stone. Basically, this modernization consisted of replacement of the rail haulage with the combination truck and belt-conveyor system. Much of the original bin storage and screening setup was retained.

At the face, the blasted rock is now loaded by a 1½-cu. yd. shovel into three trucks, each having a 9-cu. yd. body. The plant will eventually employ 15-cu. yd. trucks, and all hoppers, etc., have been designed with this change in mind. As an index of the increased production of the plant, the shovel used to work about 12 minutes out of each hour, but is now kept busy almost constantly.

After traversing the distance from the face, the trucks run up a short incline and dump into a 12- by 13-

TROUBLE-FREE SERVICE around the clock from Tiger Brand Drag Rope



ASSURE YOURSELF of good service from your wire ropes—consult an American Wire Rope Engineer regularly.

ONE of the largest coal companies in Pennsylvania gets excellent service from Tiger Brand Wire Rope. On this big dragline, for example, 2¼" Tiger Brand Drag Rope lasts for 8 to 12 weeks, and 1⅜" Tiger Brand Hoist Rope lasts 4 to 6 months. This is good service, because these ropes work 24 hours a day, 6 days a week, every week of the year.

As a result of consistently good service records like these, many such operators use Tiger Brand Wire Rope exclusively on all their excavating machinery.

Like hundreds of other companies that do a lot of excavating, you will find that once you start using Tiger Brand Wire Rope, you keep down rope costs, keep down rope trouble, and *keep on using* Tiger Brand.

For a list of Tiger Brand Wire Ropes and the jobs each one can do best, send the coupon.

FREE ROPE BOOKLET

American Steel & Wire
Dept. GE-94 Rockefeller Building
Cleveland 13, Ohio.

Please send me, without obligation, a copy of your helpful wire rope selection guide, "The Right Rope for the Job."

Name.....

Company.....

Address.....

City & State.....

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

USS

UNITED STATES STEEL

ft. steel hopper located above a 42-in. by 12-ft. heavy-duty apron feeder, then into a 30- by 42-in. jaw crusher which makes the initial reduction to minus 4 in.

Fed directly by the primary crusher, a 30-in. belt, 57 ft. long, carries the stone to the scalping screen. A double-deck unit, it is equipped with a 4-in. mesh on the top deck, which merely keeps heavy stone off the ¾-in. cloth. This operation just removes fines. The bottom deck is equipped with a ¾-in. mesh, so that all stone between 4 in. and ¾ in. is discharged onto the second conveyor, a 30-in. by 148-ft. unit which carries the stone to a precast concrete silo having a live surge reserve of 750 tons.

Retrogressing, the minus ¾-in. material from the scalping screen falls onto a 24-in. by 78-ft. stacker, mounted at right angles to the main flow of material. This stacker builds a stockpile of approximately 2,000 tons. The material is sold almost exclusively to adjoining counties for berm aggregate and road construction. (Much of the material is employed in construction under a new state specification which calls for successive 4-in. layers of this material, spread and rolled to compaction without addition of binders.) A Barber-Greene wheel-mounted bucket loader provides the reclaiming medium from this stockpile.

Returning to the main flow of material, beneath the surge silo is a Syntron feeder set for a maximum output of 250 t.p.h. However, the feeder is equipped with a 12-speed control which can be varied according to the capacity requirements for the type of material being produced. This provides an even flow of material, under all conditions, to the remainder of the crushing and screening equipment.

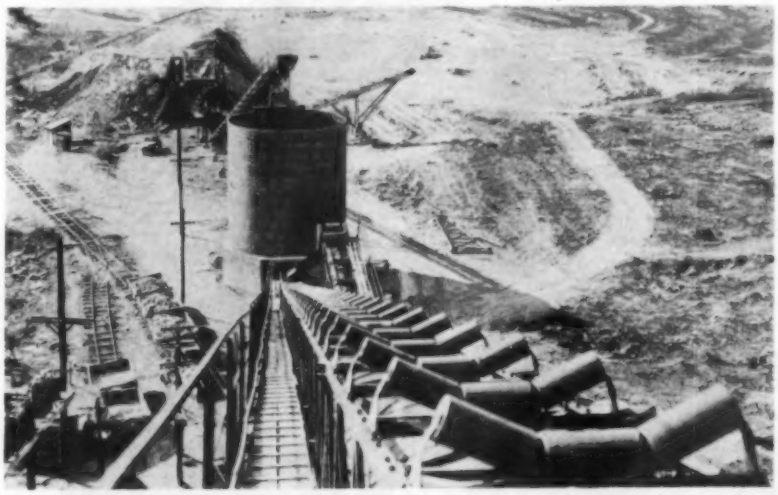
The first conveyor in line after the Syntron is a 30-in. by 247-ft. belt leading to the 4-deck, 4- by 12-ft. screen which sizes the material. On its top deck it is now equipped with a 3-in. mesh cloth. Oversize is chuted to a gyratory crusher at ground level which reduces it to minus 1 in. From the gyratory, the stone is returned to the main line of flow by means of a 24-in. by 168-ft. belt.

On the successive decks of the 4- by 12-ft. screen, the aggregate is separated on screen cloths with openings of 1⅞, ¾, and ⅛ in.

With processing completed, storage is accomplished through a tie-in with the supplementary screens and bucket elevators remaining from the previous system. The structure which

(*Continued on page* 142)

Products of the company are well advertised by this large billboard, which fronts directly on the highway skirting the plant.



During the erection of the new conveyor system the rail haulage system (lower left) was kept in operation. The conveyor was built literally on top of the rail haulage line.

Nearly 60 years ago this operation was in progress on the site of the Laura Stone Company. Note the steam and hay-burner power employed and the steam drill at the upper right. This drill was kept in the company's warehouse until very recently.

SPECIAL TORTURE-PROOF U. S. RAINBOW V-BELT YAWNS AT ABUSE

If your V-belts have to withstand conditions not found on the average drive, such as oil, high temperatures, static electricity—order U. S. Rainbow® V-belts compounded to handle such rugged treatment.

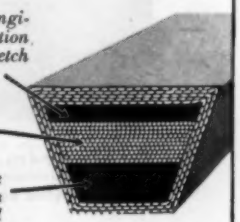
- Cords are treated with latex to reduce heat generated by constant flexing, and to get maximum adhesion between the component parts of the belt.
- Straight sidewalls provide extra pulling power by gripping the grooves for complete contact the full height of the belt.
- Protective jackets keep out dirt and prolong wear.

Order from your distributor, or contact any of United States Rubber Company's 26 District Sales Offices, or write to address below.

***Top rubber cushion** in closely engineered balance with the lower section . . . to keep cool under constant stretch and return.*

***Equa-Tensil Cord Section**— all cords scientifically placed, each pulling its share of the load.*

***A sturdy level cushion** for the Equa-Tensil Cord Section provides structural firmness for V-grooves and over the flat pulley of V-to-flat drives.*



A COMPLETE DRIVE SERVICE

MULTIPLE V-BELTS • F. H. P. V-BELTS • SHEAVES
FLAT BELTS AND BELTING • SPECIAL PURPOSE BELTS

"U. S. Research perfects it.
"U. S." Production builds it.
U. S. Industry depends on it.

US RUBBER

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes
Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

When the job won't wait . . .

YOU CAN GET

Cedarapids

Built by IOWA

BIG CAPACITY AGGREGATE PRODUCERS

Jaw Crushers, all sizes from 6″x12″ to 32″x40″, for big-volume primary and secondary reduction.

Horizontal Vibrating Screens, 2′ x 6′ to 4′ x 14′ single, double and triple deck models, give you biggest volume and most accurate gradation. Also Inclined Screens in all regular sizes.

Three sizes of Hammermills for reduction jobs requiring larger volume of fines.

Double Impeller Impact Breakers for big-volume production of cubical shaped aggregate up to 50″ feed size.

Junior Tandem portable crushing and screening plant for producing 100 to 150 tons per hour under average conditions.

Super Tandem recommended for big-capacity output in pits with a high percent of fines or contaminated material.

The Commander, big volume producer when specifications call for more smaller sizes of crushed aggregate.

Portable Primary Crushers will convert your gravel plant to big-capacity rock plant. With or without grizzlies.

Single Pass plants for jobs requiring two sizes of material, when extremely accurate gradation is not important.

Get what you want WHEN YOU WANT IT!
Call Your CEDARAPIDS Distributor First

Your Cedarapids distributor is all set to supply you with the equipment, complete parts stock and the service to help you with the jobs that won't wait as well as for your day-to-day needs. Check your needs and call him today.

FAST DELIVERY
from your CEDARAPIDS DISTRIBUTOR

Here are some of the items that you can order now and have delivered very promptly so you can get in on autumn contracts! Each piece of equipment is a big-volume producer that will keep you ahead of schedule at a cost that will be profitable on your low bids. Whether your contract is for producing aggregate, mixing asphaltic concrete or compacting highways or airport subgrades and bases it will pay you to buy the best. Buy Cedarapids and get it first!

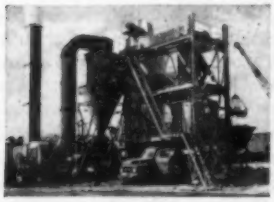
Your Cedarapids dealer has all the facts about fast delivery and low cost operation and maintenance. See him today!

LOW MAINTENANCE BITUMINOUS MIXING PLANTS

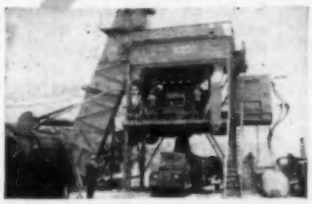
Model CM Commercial Mixer, continuous-mix type plant for your smaller bituminous mixing jobs.

Packaged Drier complete with bucket elevator and Cyclone type dust collector for portable or stationary installations.

Dry Skimmer Type Dust Collector for compact, simplified installation, increased efficiency and low maintenance.



Model E batch-type bituminous mixing plant turns out 4000 lbs. at a batch.



Model G60, the newest batch-type plant, for cutting your mixing costs and producing 3 tons at a batch.

Compactors reduce the cost and time required for compacting roadbed and runway foundation 50% to 90%.

IOWA
MANUFACTURING COMPANY
Cedar Rapids, Iowa, U. S. A.

IOWA MANUFACTURING COMPANY, Cedar Rapids, Iowa, U. S. A.
Gentlemen: Please send literature and further information about:

- ☐ Crushers
- ☐ Impact Breakers
- ☐ Portable Aggregate Plants
- ☐ Compactors
- ☐ Driers
- ☐ Dust Collectors
- ☐ Bituminous Mixing Plants
- ☐ Screens

Name_____
Company_____
Address_____
City_____ Zone____ State_____

Ohio Producer

(*From page* 138)

formerly housed the crushing and screening equipment is now wholly devoted to storage. At present the following sizes are stocked:

Ohio State Spec. No.	Size (100% passing)
#1	4 in.
#2	3 in.
#3	2 in.
#4	1 in.
#46	1 in. (higher % of ¾" & ½" than #4)
#6	½ in.
#9	⅜ in.
#7	⅛ in.

In addition, the company produces crusher run and agricultural limestone. The latter is specially prepared with another gyratory crusher which reduces it to minus 40 percent passing 100-mesh. Neutralizing power of lime is 111 percent.

Bin storage of nearly 1,000 tons can be accommodated in the plant. Unloading into trucks is by gravity. In addition to the sizes listed, it is possible to blend two, three, or more sizes together in the plant to meet any desired specification.

In addition to the bin storage, outside stockpiles are maintained. Trucks receive the sized stone from the bins and haul it a few yards to stockpiles for reclaiming by bucket loader or shovel.

Despite the complexity of the plant and its very considerable output, the actual operation requires only two men. One, stationed at the truck dump, can control the operation of the scalping screen and all conveyors up to the main plant. The other man, with his station atop the structure which supports the 4-deck screen, controls the sizing and storage in the inside bins. About seven other workers are employed, including truck drivers, shovel operators, maintenance men, etc. Senator I. E. Baker is general manager, and Roger Baker is superintendent.

personal mention

GUY C. BLACKMORE has retired from his post as chief chemist for Northwestern States Portland Cement Company, Mason City, Ia., after completing 35 years of service with the firm.

E. W. VALENSI has been made vice-president of the North American Refractories Company, Cleveland, Ohio, in addition to his former office as secretary. S. M. SWAIN has been appointed vice-president, research.

G. R. Ostrander

GLENN R. OSTRANDER, general credit manager for Marquette Cement Manufacturing Company and its subsidiaries, has been elected assistant treasurer of the company. He will continue in charge of credits.

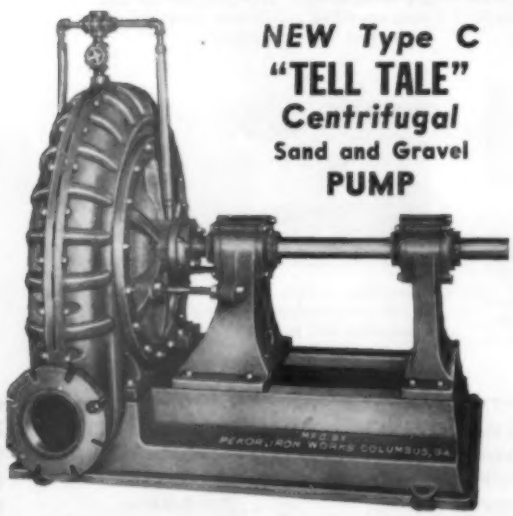
Mr. Ostrander joined the company in 1934 as assistant to the credit manager, and became credit manager in 1942 and general credit manager in 1952. He is a member of the National Association of Credit Men, and a director of the Chicago Association of Credit Men.

EDWARD L. BUSCH, formerly district manager of the northern California district of the United States Gypsum Company, has been named division sales manager of the Southern Pacific district of that company, replacing G. V. LANE, who was recently named merchandising manager of dealer sales. HOWARD B. SOLBERG, formerly line salesman for U.S.G. in Portland, Ore., has been named to fill Mr. Busch's former post.

Mr. Busch began with U.S.G. in 1948 as a line salesman in the Los Angeles office. He was then made assistant sales manager of the plastering materials department, and in 1951 became district manager of the northern California district, his most recent position.

Mr. Solberg joined U.S.G. in 1939

DOUBLING SAND PRODUCTION AT NO INCREASED COST



NEW Type C "TELL TALE" Centrifugal Sand and Gravel PUMP

Report from the Coastal Sand Co., Johnsonville, S. C. on the performance of its first 6" Ni-Hard "TELLTALE" pump:

"On March 13 (1954), we pumped and loaded into cars 510 tons of concrete sand in 4½ hours operating time under 110' head.

"This pump produced slightly over 60,000 tons of marketable sand before it was necessary to replace any wearing parts, this being more than twice the production of the pump of another make that it replaced."

Available with either tough semi-steel or best-in-the-long-run Ni-Hard wearing parts in 4", 6", 8", 6x8" suction and 8x10" suction. Now available also in either alloy, 45° and 90° extra heavy long radius flanged elbows. Type C bulletin on request.

PEKOR IRON WORKS, INC.
LOCK DRAWER 909 ESTABLISHED 1892 COLUMBUS, GEORGIA

Leschen engineers tell you how to determine

Proper Use of Wire Rope with Wire Rope Core

First, what is it? It is a completely metallic rope made with a separate wire rope as a core, instead of the usual fiber core.

Why is it used? The steel core resists extreme pressure of individual strands on the core under very heavy loads. Here, a Red-Strand steel core rope substantially outlasts a fiber core rope. The extra steel in the core increases rope strength and safety by 7½%, compared with wire rope with fiber core. For occasional heavier loads this eliminates time and expense of changing sheaves, blocks and equipment to suit a bigger fiber core rope.

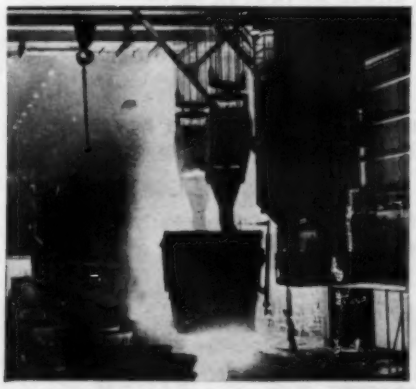
Red-Strand steel core rope answers the problem of crushing when rope is spooled in multiple layers on small diameter drums and winches—or when heavy loads are dragged or pulled. It also resists the damaging effects of excessive heat.

Where is it used? For extra strength and to resist heavy load pressure: on shovel and draglines—for drag, hoist, crowd and frequently boom ropes; on dredges, trench hoes, cranes and similar heavy duty equipment. To resist crushing: on bulldozers, scrapers, coal cutters, coal loaders, logging, arch and choker lines, and on rotary drilling lines. To resist excessive heat: on hot ladle cranes.

Which make should you use? Red-Strand steel core wire rope is highly recommended by its users for its higher-than-rated quality and longer-than-expected service. That saves money.

What's the next step? Talk to your Leschen distributor or Leschen field man. They're well qualified to answer your specific questions about Red-Strand steel core wire rope—or to help solve other wire rope problems. That means profit for you.

Severe stress, pressure and crushing occur on wire rope jobs like this and on rotary drilling drums and winches. On these jobs it pays to use higher-than-rated quality Hercules Red-Strand wire rope with wire rope core.



Where tons of molten steel are to be lifted by wire rope, great strength and resistance to intense heat are required. Here Hercules Flattened Strand wire rope with wire rope core delivers much longer-than-expected service.

Hercules Red-Strand wire rope made by

LESCHEN WIRE ROPE DIVISION

THE WATSON-STILLMAN COMPANY

(A SUBSIDIARY OF H. K. PORTER COMPANY, INC.)

St. Louis 12, Missouri

in the Minneapolis office. In 1947 he was transferred to the Portland office as a line salesman.

GEORGE T. HARLEY, for ten years manager of International Minerals & Chemical Corporation's potash mines at Carlsbad, N. M., retired on July 1 under the regular retirement policy of the company, according to an announcement by A. Norman Into, vice-president in charge of the company's potash division.

Mr. Harley, who came to International as a geologist in 1940, became manager of the mine location in 1944. His past experience has been in the fields of mining and geology. He has been a mining engineer, a consulting engineer, a geologist, and a professor of geology and mining at New Mexico School of Mines. He now plans to engage in private practice as a geological and mining consultant.

CARL AREND succeeded Mr. Harley as manager of the Carlsbad mining installation in January of this year.

GILBERT BENTON PRAY, sales manager of the Northwestern States Portland Cement Company, Mason City, Ia., retired from his post on July 1 after serving the company for 25 years. Mr. Pray was made head of the sales department in 1941.

JOHN P. HAYES was recently appointed assistant district manager of National Gypsum Company's Indianapolis office. He was formerly in charge of the firm's insulation board commodity section.

E. HARLAN CHURCH was recently elected treasurer of the International Division of Minnesota Mining and Manufacturing Company of St. Paul. EUGENE F. KINDLER was elected assistant treasurer of the same division.

R. EARL PRATT, credit manager of Fischer Lime & Cement Company, was chosen "Memphis Credit Executive of the Year" recently by the Memphis Association of Credit Men (wholesale).

RALPH E. ROSCOE, vice-president of The Bessemer Limestone and Cement Company, Youngstown, O., has retired from active duty after 25 years of service with the company, but will continue to serve as a director. Mr. Roscoe has been associated with the cement industry since 1906 when he started as a cement chemist. He has been active in the technical committee of the Portland Cement Association, the American Concrete Institute, and the American Society for Testing Materials, where he has been a member for the last 41 years and is an honorary member of Committee C-1.

G. DONALD KENNEDY, chairman of the executive committee of the Highway Research Board, has announced the appointment of ELMER M. WARD as assistant director.

Mr. Ward joined the technical staff of the Board in 1946 as engineer of maintenance, and in 1949 was also made engineer of materials and construction and has served in these capacities until his present promotion.

EDWARD PAPPERT, formerly assistant sales manager of paint products, has been appointed district manager of the Pittsburgh District of United States Gypsum Company, according to Frank M. Miller, dealer sales manager of the Eastern Region. This position was formerly held by J. P. O'BRIEN, who has been named sales manager of Building Steel Products. Mr. Pappert has been affiliated with U. S. Gypsum since 1947.

On-the-job photos, above, show actual results—uniform cubical output—from a hard working Eagle Hammermill in the heart of the nation's lime stone country.

Especially gratifying is the superintendent's report on this machine: "No downtime in over 4 years."

Send for more information to improve your quality and lower your costs.

EAGLE CRUSHER CO., Inc. GALION OHIO·U·S·A

JAW CRUSHERS · IMPACT BREAKERS
PULVERIZERS · CONVEYORS · LOADERS

More Information, Please

Use the prepaid postcard to get this literature or additional details about new equipment and products reported elsewhere in this issue.

MOTOR REDUCERS. All information needed for the selection of any type *Falk* Motoreducer (horizontal, vertical or right angle) in all-motor or integral design is included in this valuable 28-page addition to your gear drive library. (1)

BLAST HOLE DRILL. Economy in bigness is the theme of this *Bucyrus-Erie* brochure describing the 50-T churn drill, which drills 9 to 12-in. diameter holes, handles heavy tool strings up to 6000 lb. (2)

ASHPHALT PLANT. Able to make one ton at a time or a production run on *Universal's* Speed Batch 2000 plant (stationary or portable). Features push button control, progression indicator lights and controlled batch aggregate drying. (3)

HARD-FACING is discussed in this new 72-page study from *Mir-O-Col Alloy Co.* (4)

STEEL PLATE, heat-treated to provide longer wear in heavy-duty applications, is described in this *Jones & Laughlin* folder on Jalloy Grade 3. (5)

CENTRIFUGAL PUMPS that prime! This brochure gives all data on Gorman-Rupp's "O" series suitable for all pit and quarry duties. (6)

CRANE CONTROL. The application of torque-control to Aero rubber-tired and Powermatic crawler cranes is described in this *Orton* bulletin. (7)

MILL BEARINGS. Steel pillow blocks with *Link-Belt* self-aligning roller bearings for heavy loads and severe impact are shown in this catalog. (8)

ASPHALT PLANTS made by *Cummer* are featured in this comprehensive 28-page catalog, replete with interesting details and a glossary of asphalt terms. (9)

CRAWLER TRACTORS. The story of the *Allis-Chalmers* diesel-powered line is told pictorially in this 16-page "FACTS . . . on a New Breed of Tractors". (10)

TELEVISION will let you see where you can't look says this Diamond UtiliVue bulletin, describing the working of closed-circuit industrial TV. (11)

REVOLUTIONARY power transmission drive, for high speeds, heavy duty, the *Morse* Hy-Vo is "smooth as a belt with the strength of steel and positive as a gear with the flexibility of a chain," says this brochure. (12)

HANDBOOK. This valuable pocket-size publication from *Denver Equipment Co.* has 840 pages devoted to mineral treatment—equipment, techniques, flowsheets, tables, charts, and all sorts of helpful information. (13)

RUBBER PRODUCTS made by *Raybestos-Manhattan*—transmission and conveyor belts, hose, V-belting, etc.—are shown in this new catalog. (14)

VIBRATING EQUIPMENT made by *Jeffrey-Traylor*—feeders, conveyors, coolers, dryers, mixers, constant weight feeders, bin check valves, packers, screens, controls and magnetic separators—appear in this 230-page catalog. (15)

MORE PROFITS thanks to more trips per hour, more yards per day, is the story told in this folder about the new *Athey* PR-21 rear dump wagon that teams with the *Cat* DW21 to rival truck performance. (16)

CORE DRILL. The high-speed, heavy-duty *Sprague & Henwood* model 142 for diamond drilling a ⅞-in. core at 2000 ft. (2⅛-in. at 1000 ft.) is described in this bulletin. (17)

CRANES with especially-built turntable for rubber-tire mounting feature this brochure on the *Lorain* "42" Moto-Crane and self-propelled carrier. (18)

HOSE DUCT for moving air, gas, dust, and lightweight materials is described in this folder from *Flexaust Co.* (19)

BUSHINGS, HUBS—featuring the *Dodge* Taper-Lock principle—shown in this catalog, have wide application in our field. (20)

"PRODUCING ON SCHEDULE in Pit and Quarry" is discussed in this *Caterpillar* brochure showing outstanding plants with installations of Cat engines or electric sets. (21)

COMPRESSOR. A new power take-off lets you mount this 600 cfm *Le Roi* compressor on any old crawler tractor whose engine is still good. (22)

FIRST CLASS
PERMIT NO. 44
(Sec. 34.9 P. L. & R.)
CHICAGO, ILL.

BUSINESS REPLY CARD
No Postage Stamp Necessary if mailed in the United States

THREE CENTS POSTAGE WILL BE PAID BY

Pit and Quarry Publications
431 South Dearborn Street
CHICAGO 5, ILL., U.S.A.

SEPTEMBER 1954

Please send more information on circled items described in this issue:

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77	78	79																

In addition I would like information on:

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Company _____

Address _____

City _____ **Zone** _____ **State** _____

More Information, Please

Use the prepaid postcard to get this literature or additional details about new equipment and products reported elsewhere in this issue.

AIR FILTER for engines and compressors, made by *American Air Filter*, features a new development based upon wartime airplane engine filters. (23)

CRUSHING PLANTS. Three portable models built by *Diamond Iron Works* have capacities from 30 to 70 tph, several features to increase your production. (24)

SHIELDED MOTOR. A fully-enclosed motor design, with asbestos-protected windings, normalized castings and other features, comes in ¼ to 250 hp. ratings, this *US Electrical Motors* brochure tells. (25)

BURNERS for rotary dryers and kilns, using oil or oil-gas combinations and low pressure air to give greater drying tonnage with less combustion chamber repairs and good fuel economy, are described in this *Hauck* bulletin. (26)

ELECTRICAL EQUIPMENT for the process industries is discussed in detail in this helpful 28-page *General Electric* treatise. (27)

BULK HANDLING equipment and structures described in this 32-page *Dravo* booklet include ore bridges, man trolley unloaders, rope-operated towers, hydraulic buffers, rail clamps, etc. (28)

VIBRATING SCREENS. There are 31 models, single and multiple deck, heavy-duty screens, sizes 3x8 to 5x14-ft. in the *Bonded Scale & Machine Co.* line, recently expanded. (29)

POWER GIANT 4-cylinder industrial engines, made by *Willys Motors*, have long life, low cost, rugged ability, and L or F heads, this brochure shows. (30)

CAR SHAKER cuts unloading costs as much as 80%, this *National* bulletin says. One man attaches it to empty hopper bottom cars in less than 6 minutes. (31)

AUTOMATIC WELDER. A portable machine for almost unlimited application in the field of submerged arc welding is shown in this *Sight Feed Generator Co.* bulletin. (32)

HOIST DATA. A hoist classification chart has been compiled by the *Hydraulic Hoist & Steel Dump Body Mfrs. Assn.* to provide a means of standardizing the capacity ratings and comparing the hoists made by its members. A glossary of terms used by the hydraulic hoist industry is also available. (33)

CHAIN SETS for dragline buckets are featured in this *Page* bulletin. (34)

STANDBY PLANTS. Intended for the layman, this *Onan* bulletin covers the installation of emergency standby electric generating equipment and automatic line transfer controls. (35)

BAGGER. A semi-automatic gross bagger with hand-operated scale is discussed in detail in this *Richardson Scale* bulletin. (36)

RADIAMATIC PYROMETERS for measuring temperatures from 125 to 7000 F shown in this catalog are made by *Minneapolis-Honeywell.* (37)

HELIWELDING process and its equipment is discussed in this *Air-Reduction* 16-page catalog. Automatic hardfacing, using vibratory feeder, is also shown. (38)

TRACTOR-SHOVELS. Pit and quarry and ready-mix plant operators will get helpful ideas on materials handling from this brochure devoted to the *Hough* Payloaders. (39)

QUARRY CATALOG. Pumps, compressors, rock drills and pneumatic equipment made by *Gardner-Denver* are shown in this condensed catalog. (40)

DATA SHEET on Walmang (*Wall Colmonoy*) austenitic nickel manganese steel electrodes gives application methods for repairing or building up castings and for hardfacing. (41)

WELDERS are made by *Hobart Bros.* to suit every need, this leaflet shows. (42)

HOSE COUPLING. Permanent freedom from leakage is provided by *Titeflex* Quick-Seal couplings for all hose lines (air, water, oil, steam, etc.) 16-page booklet shows. (43)

BATTERY DATA. Heavy duty storage batteries for trucks, tractors, off-the-road equipment, etc., are featured in this 12-page *Electric Storage Battery Co.* booklet. (44)

SEPTEMBER 1954

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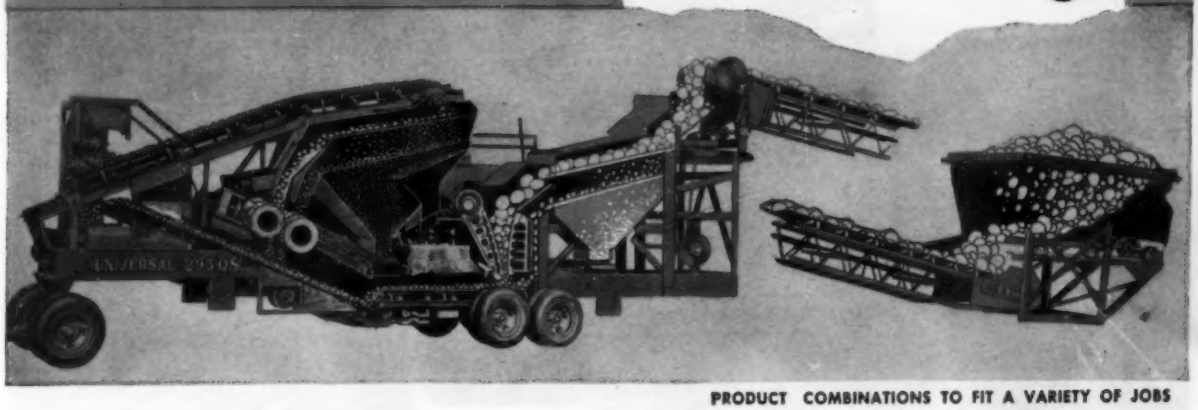
431 South Dearborn Street

CHICAGO 5, ILL., U.S.A.

FREE AGGREGATE

FOR BIGGER PAYLOADS
MORE PRODUCT COMBINATIONS

The UNIVERSAL 293QS TwinDual Gravel King

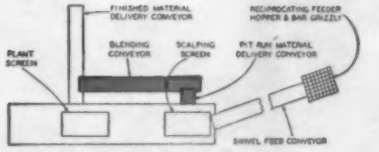


Universal gives you more tons per hour at less cost per ton with three full stages of crushing and **two screens** in the 293QS TwinDual Gravel King.

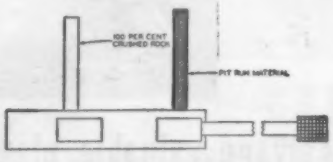
Pit run material of finished size is pre-screened and does not pass through the main plant. You get **Free Aggregate** which increases over-all production 50 to 100%. The main plant screen sizes crushed material only and is not burdened with natural finish. Top crushing capacity is provided by Universal's exclusive TwinDual Method which divides the crushing load between three crushing stages: First stage - 18" x 24" or 20" x 36" Jaw Crushers, Second and Third stages - 24" or 30" TwinDual Roll Crushers.

For those big jobs requiring volume production and a variety of finished product combinations, investigate the 293QS TwinDual Gravel King. Complete details in Bulletin No. U501. Write for your copy.

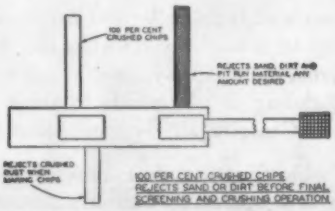
PRODUCT COMBINATIONS TO FIT A VARIETY OF JOBS



FOR PRODUCING ROAD AGGREGATE
BLEND FINISHED SIZE PIT RUN MATERIAL WITH CRUSHED MATERIAL



FOR PRODUCING 2 PRODUCTS SIMULTANEOUSLY
100 PER CENT CRUSHED ROCK AND SIZED PIT RUN MATERIAL


100 PER CENT CRUSHED CHIPS
REJECTS SAND, DIRT AND PIT RUN MATERIAL ARE AMOUNT DESIRED
REJECTS CRUSHED DUST WHEN MAKING CHIPS

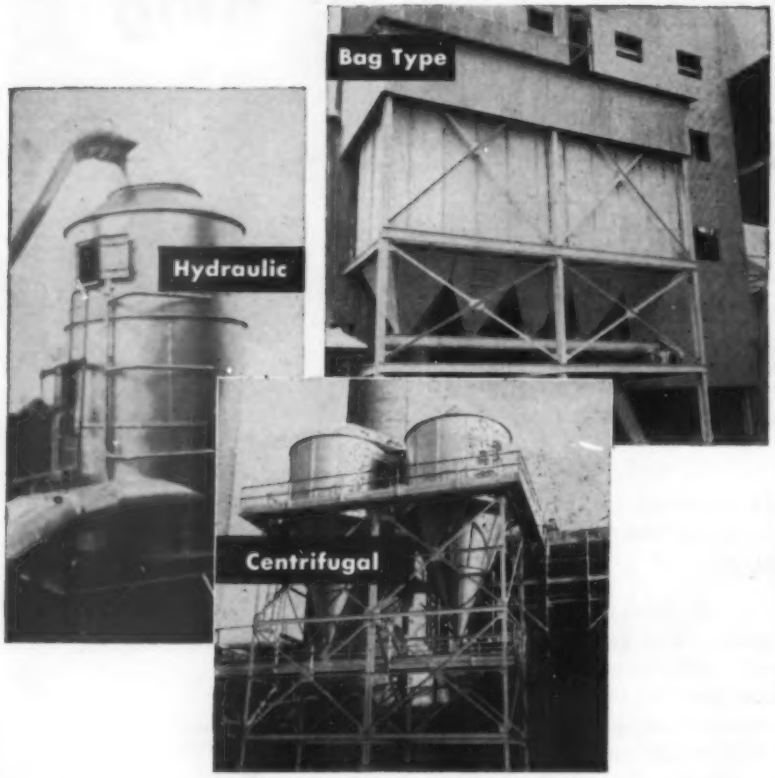
100 PER CENT CRUSHED CHIPS
REJECTS SAND OR DIRT BEFORE FINAL SCREENING AND CRUSHING OPERATION

UNIVERSAL ENGINEERING CORP. *Subsidiary of* PETTIBONE MULLIKEN CORP.

619 C Avenue N.W., Cedar Rapids, Iowa
Phone 7105

4700 W. Division St., Chicago 51, Illinois
Phone SPaulding 2-9300

Cancel the High Cost of Dust and Fume Damage with Norblo engineered collection equipment . . .



and salvage valuable elements economically!

Dust and fume collection fits into processing and manufacturing *in a big way*. Norblo has helped to implement this valuable aid to safety, health and economy in a big way with outstanding developments in three principal types of collection — Centrifugal, Hydraulic and Bag systems.

Norblo Systems are making new records for high recovery with low operating and maintenance costs. High-efficiency equipment is engineered to include the correct factors to suit your needs and carries the Norblo guarantee of performance. Get the facts on Norblo Dust and Fume Collectors before you decide on any dust or fume collection equipment.

The Northern Blower Company
Engineered Dust Collection Systems for All Industries
6407 Barberton Ave. OLympic 1-1300 Cleveland 2, Ohio

Three new appointments in the North Atlantic Region of United States Gypsum Company have been announced by O. C. White, dealer sales manager of the North Atlantic Region.

R. S. NORRIS has been appointed division sales manager, and R. E. UNDERWOOD has been named merchandise manager of the New York Division; R. H. MARACK has been appointed division sales manager of the Northeast Division.

JACK K. LINDSEY, formerly district sales manager of International Minerals & Chemical Corporation's Plant Food Division, Cincinnati, O., has been appointed district sales manager, Potash Division, Shreveport, La., as announced by A. Norman Into, vice-president in charge of the Potash Division.

Mr. Lindsey, who has been employed by International since 1952, was formerly sales manager for the Buhner Fertilizer Company of Danville, Ill. Prior to that he supplied technical service in the sales department of Spencer Chemical Company, Kansas City, Mo.

WALTER S. CORRIE, treasurer of the National Gypsum Company, was elected president of the Buffalo Chapter of the Controllers Institute of America at a meeting in Buffalo, N. Y.

HARRIS N. SNYDER, vice-president and general manager of the Buffalo Slag Company, Inc., Buffalo, N. Y., has been elected third vice-president of the Buffalo Chamber of Commerce.

ANDREW J. SPRADLIN has been appointed director in the new district office in New Orleans of the Portland Cement Association. Mr. Spradlin has been field engineer for the association in its Birmingham, Ala., office since 1941. He is a registered structural engineer and a member of the National Society of Professional Engineers.

W. L. PETRIE was elected president of the Lone Star Sulphur Corporation, Houston, Tex., at a recent meeting of the board of directors of the company. He succeeds Frank Champion, who was made president last October. Mr. Petrie was active in organizing the company, formed in 1952, and has given a major part of his time from its start to the corporation affairs. Construction was completed June 1 on its $670,000 plant at Long Point, Tex.

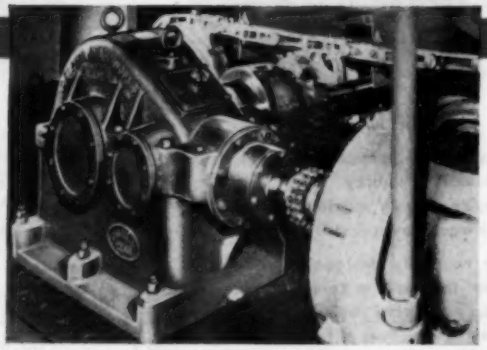
HERE'S

SPEED REDUCER *Engineering* AT ITS VERY BEST

The sturdy, compact construction of this widely used Philadelphia Spiral Bevel-Helical Unit is evident from an examination of the above illustration . . . the balanced arrangement of the gears; the anti-friction bearings, designed to take combined radial and thrust loads; the rugged pinion and gear shafts which are finished to close tolerances by grinding; the generous sized housing that provides an adequate oil reservoir and large radiating surface for thermal capacity.

Philadelphia Units have built-in satisfaction, and are available in ratios as low as 1 to 1, with horizontal right or left hand output shafts; or Up and Down Vertical Shafts.

Be convinced — send for 58 page Catalog SB-50 which illustrates and describes Philadelphia Spiral Bevel Speed Reducers.



A Philadelphia Spiral Bevel-Helical Reducer driving a Flight Conveyor; 30 hp at 850 rpm; reduction ratio 10 to 1.

PHILADELPHIA GEAR WORKS, INC.

ERIE AVE. AND G ST., PHILADELPHIA 34, PA.
NEW YORK • PITTSBURGH • CHICAGO • HOUSTON • LYNCHBURG, VA.

Industrial Gears & Speed Reducers

LimiTorque Valve Controls

Get the "Drop"
ON ROCK-BREAKING COSTS

Specify the

"CAPE ANN"
FORGED
STEEL DROP BALL

2000 to 12000 lbs.

This is the primary unit for many successful quarry operators . . . they're sure of maximum impact and high-economy service.

The ruggedly designed "Cape Ann" Drop Ball has a forged connecting link, protected by a deep recess, adaptable for either swivel or shackle. Strong alloy steel pin. Low cable replacements. Furnished complete as shown.

Write for full information

Cape Ann Anchor & Forge Co.
Gloucester • Massachusetts

obituaries

CLARENCE BLAKESLEE, chairman of the boards of C. W. Blakeslee and Sons, Inc., and the New Haven Trap Rock Company, New Haven, Conn., died June 29 at a hospital in that city, at the age of 91 years. He was a former member of the Yale Corporation and former president and director of several utilities and financial institutions.

RAY R. SABLAIN, 71, president and general manager of the Lansing, Mich., ready-mixed concrete and sand and gravel business bearing his name, died July 26 at a hospital in that city after a long illness. He had come to this country from Belgium in 1912, and after service in World War I, entered the gravel business, later adding the ready-mixed concrete plant.

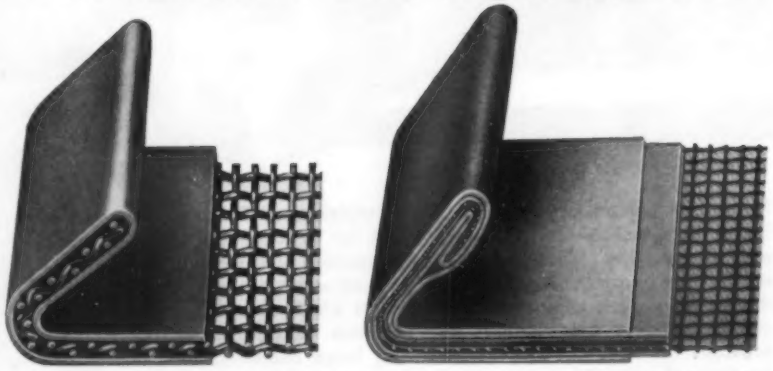
HENRY KOESSLER, 53, who for the last 21 years had been in charge of three quarries in Uruguay, South America, for the Lone Star Cement Corporation, died suddenly of a heart attack on June 14 in Minas, Uruguay.

Since under the laws of Uruguay interment must take place within 24 hours after death, Mr. Koessler was buried in a cemetery at Montevideo, about 125 miles from his home.

LISLE KIRKBRIDE, owner of Kirkbride Gravel Company of Coopersville, Mich., succumbed to a heart attack on May 31 at his home.

ROGER W. MALBON, 47, general manager for the River Bend Sand and Gravel Company of Salem, Oreg., died unexpectedly on June 20 of a heart attack.

Tyler Screen Sections
for
All Makes of Screening Machines!



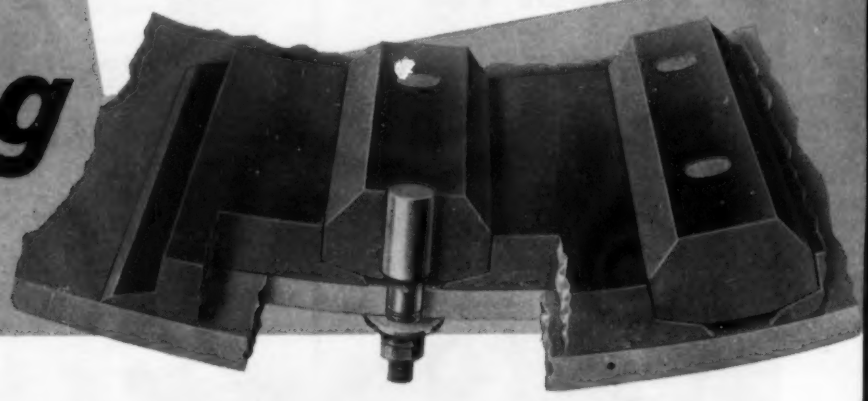
Screen sections of Tyler Woven Wire are fabricated for all makes of vibrating screens in any mesh or metal. They are made up with hook-strip or bent-edge construction to suit the machine on which they are to be used.

Tyler hook-strips make possible stretching and maintaining the screening at drum-head tension, which is essential for successful screening and long screen life.

THE W. S. TYLER COMPANY
CLEVELAND 14, OHIO
Manufacturers of Woven Wire Screens and Screening Machinery

Cut grinding costs

- U·S·S Lorain Rolled Plate Linings are in easy-to-handle sections, accurate sizes to permit quicker installation.
- Lift bars are designed for correct cascade action . . . height of lift varies according to conditions.
- Plates can be heat-treated to compensate for wear.
- Correct sizes make tighter joints—eliminate shell wash.
- Bolt supports located near the bottom of the bar . . . last for life of the lining.



with U·S·S Lorain Rolled Plate Linings

You can do more and better grinding, for less money, with U·S·S Lorain Rolled Plate Linings. The output of your mill increases when the usable diameter increases, and this is just what happens when rugged Lorain *rolled steel* plates are used instead of ordinary castings. Lorain Liners can be much thinner due to their superior strength. Their lighter weight simplifies handling.

You save money with U·S·S Lorain Rolled Plate Linings because they are readily installed and require less maintenance. The plates are accurately made and are in easy-to-handle sections for ready use. Severe localized wear at feed or discharge end of the mill can be balanced by heat-treating.

Lorain Liners are so durable that they remain serviceable until they're almost paper thin. You benefit from the use of the entire plate . . . there is less waste, longer wear. Mill downtime will be reduced and so will your upkeep costs.

The accurate size of U·S·S Lorain Rolled Plate Linings assures tight fit between the ends of the plates and between plates and lift bars, eliminating shell wash.

U·S·S Lorain Rolled Plate Linings are available—in the diameter, length and thickness best suited to your operating conditions—through leading mill manufacturers whose names will be furnished upon request.

U·S·S GRINDING BALLS are carefully made of special composition steel to take long, rough wear evenly. Samples from each production lot are thoroughly tested to make sure of surface hardness and maximum hardness penetration. They come in eleven sizes from ¾" to 5". For further information just return the coupon below.

United States Steel Corporation
Room 4437, 525 William Penn Place
Pittsburgh 30, Pa.

Without obligation on my part, please send me your FREE booklet on U·S·S Grinding Balls.

Name .....

Company .....

Address .....

City ..... State .....

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S LORAIN ROLLED PLATE LININGS AND U·S·S GRINDING BALLS

USS

4-283

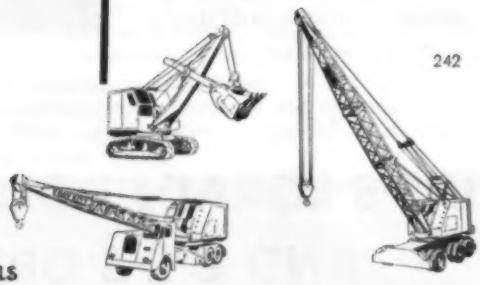
UNITED STATES STEEL

new 1½ yard BAY CITY . . . ideal for tough quarry work

In the quarry and on many other tough jobs, Bay City Shovels are proving their honest dependability day after day. For instance, below is a new model #70, working for the Essex Sand and Gravel Company at Peabody, Massachusetts. This low-weight, low-price #70, rugged enough for quarry work, will handle any excavating job. Powered by Cummins Diesel with hydraulic coupling, the #70 as a shovel weighs 44 tons and is equipped with 23 ft. boom, 18 ft. sticks, and a 1½ yard rock-type dipper. Let us tell you more about this fully convertible shovel-crane which is available with standard or long crawlers. BAY CITY SHOVELS, INC., Bay City, Michigan.

WRITE FOR CATALOG 70/700-A

This 16-page catalog is yours for the asking. It tells the story of the 70/700 in pictures and text. Write for your copy today—no obligation.



242

BAY CITY

BAY CITY SHOVELS, INC. • BAY CITY, MICHIGAN

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

Volume stocks of replacement parts for concrete pipe making equipment are maintained by the Con-Pipe Division of Texaloy Foundry Company. Shown is a partial view of the parts storage area. Parts are available for immediate shipment to the industry. For information contact Texaloy Foundry Company, 1407 Hoefgen Ave., San Antonio 10, Tex.

Mission Concrete Pipe Company *praises Ni-Hard* →

It's easy to see why Mission relies on Ni-Hard®. Ni-Hard, a nickel-chromium-iron alloy, is ideal for equipment parts subject to the heavy toll of abrasive wear. It is the hardest, most abrasion-resistant material available to the concrete pipe industry.

As a result your costs stay low . . . for there is a big gain in service life and a big jump in pipe production because of a big shrinkage in equipment downtime.

Like Mission Concrete Pipe, you too, can effect economies in your operation by using Ni-Hard equipment parts. And you, too, can take advantage of the service in replacement parts offered by the Con-Pipe Division of Texaloy Foundry Company in San Antonio, Texas.

MISSION CONCRETE PIPE CO.

MANUFACTURERS OF
REINFORCED AND PLAIN
CULVERT - STORM - SANITARY - IRRIGATION PIPE
SEPTIC AND IMHOFF TANKS WATER TANKS RESERVOIRS

E. A. NEUMAN, Pres.
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Concrete Products of All Types

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P. O. BOX 7069 - K. 7905 - L. 4-6041
SAN ANTONIO 10, TEXAS

MEMBER OF AMERICAN CONCRETE PIPE ASSOCIATION

July 21, 1954

Con-Pipe Division
Texaloy Foundry Company
San Antonio, Texas

Att: Mr. Frank L. Rosser

Gentlemen:-

We are pleased with the service we are getting on your Ni-Hard concrete pipe machinery replacement parts.

For the past three years we have been using Con-Pipe Ni-Hard parts and have found them to offer excellent resistance to abrasive wear. Best of all, however, the large stock of all wearing parts which you maintain for immediate shipment has allowed us to keep our inventories down to a working minimum. This convenience has resulted in repeated savings in our operations.

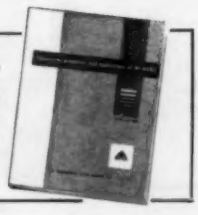
We highly recommend your program of service to the Concrete Pipe Industry.

Very truly yours,

A. W. Anderson

Mission Concrete Pipe Company
by A. W. Anderson,
Vice President

The completely revised third edition of "Engineering Properties and Applications of Ni-Hard" is now available. Write for your copy today.



EMBLEM OF INCO SERVICE

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK 5, N. Y.

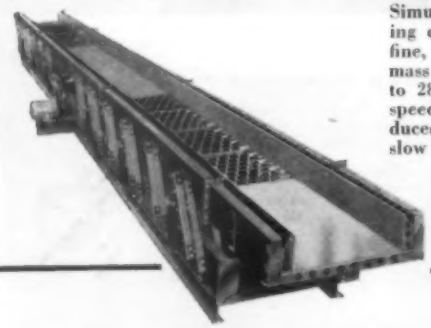
Controlled Feeding Is Answer To Better Cost Control...

that's why SYNTRON

VIBRATORY EQUIPMENT

Provides the most efficient, economical method for heavy tonnage handling of bulk materials. Positive control of feeding rates assures maximum production at less cost.

VIBRATORY Dual-Trough CONVEYORS



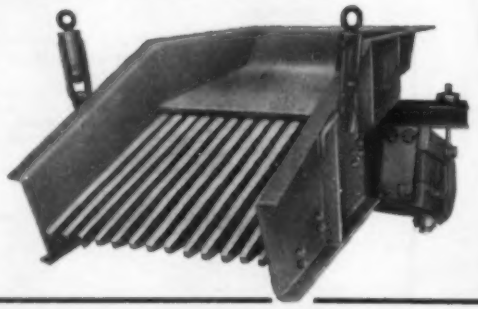
Simultaneous conveying and screening of most bulk materials—abrasive, fine, corrosive or lumpy. Swinging mass type conveyors that handle up to 280 tons per hour at controllable speeds. Energy balanced design reduces power consumption—eliminates slow downs.

Flat pan or tubular trough models—either base or suspension mounted.

GRIZZLY DISCHARGE FEEDERS

High speed, electromagnetic grizzly bar feeders that feed, scalp and coarse size in one operation. Finger-tip control permits positive adjustment of feeding rate to production requirements.

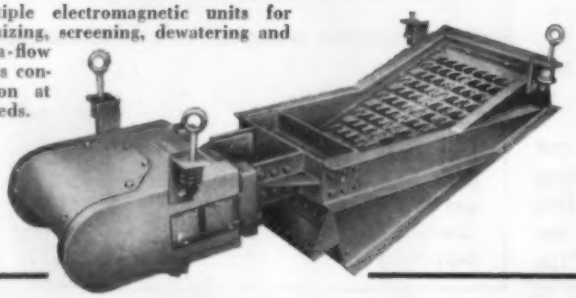
Models for small, medium or large tonnage requirements. No mechanical wearing parts such as gears, cams, belts, etc.



VIBRATING SCREENING FEEDERS

Single or multiple electromagnetic units for highly efficient sizing, screening, dewatering and feeding. Vibra-flow principle permits continuous operation at controllable speeds.

Available for overhead or below deck installation. All movement confined to leaf springs.



Write today for complete catalogue data—Free

SYNTRON COMPANY

385 Carson Avenue Homer City, Penna.

FLOYD L. GREENE, former chairman of the board of General Refractories Company of Philadelphia, Pa., died on April 13 in a hospital in Huntingdon, Pa. He had been in partial retirement since January, 1953, when he suffered a heart attack. He resigned as board chairman eight months ago because of illness. Mr. Greene was president of General Refractories from 1937 to 1952. He entered the refractories industry in 1913 at Standard Refractories Company of Claysburg, Pa., and had become general superintendent in 1922, when the firm was absorbed by General Refractories. After a series of promotions at Philadelphia, he was appointed executive vice-president in 1936.

WILLIAM C. BROAS, 54, New Jersey representative of the Giant Portland Cement Company, died on June 30 at a hospital in Montclair, New Jersey.

CLAUDE O. BROWN, 61, former president of the Dixie Asphalt Products Co., Inc., Savannah, Ga., and a consultant to the Ruberoid Co., died July 1 at his home in Savannah after a lengthy illness. Mr. Brown, who spent his entire business career in the building materials field, founded Dixie Asphalt in 1938 and was president until last March, when the business was sold to the Ruberoid Co.

GLENN A. STEWART, 52, a partner in the Wamego Sand Company, of Wamego, Kan., died June 22 at his home after a long illness.

ALEX RANSON, 83, widely known Nevada mining man and discoverer of extensive gypsum deposits in Empire, Nev., died July 8 at a hospital in Reno. His interests had been sold many years ago to U.S. Gypsum Co., which operates the plant at Empire at the present time. Mr. Ranson also discovered large tungsten deposits in the region during World War I, and developed numerous other mining properties in the state in later years.

ARETUS ALFRED BROWN, 63, traffic manager for the Lone Star Cement Corporation, Kansas Division, died unexpectedly July 21 in front of his home in Kansas City, Kan., from a cerebral hemorrhage. He had completed 25 years of service with the cement company since he became traffic manager in 1929. He had received wide recognition for his work as a traffic expert for the Kansas Corporation Commission in the 1920's.

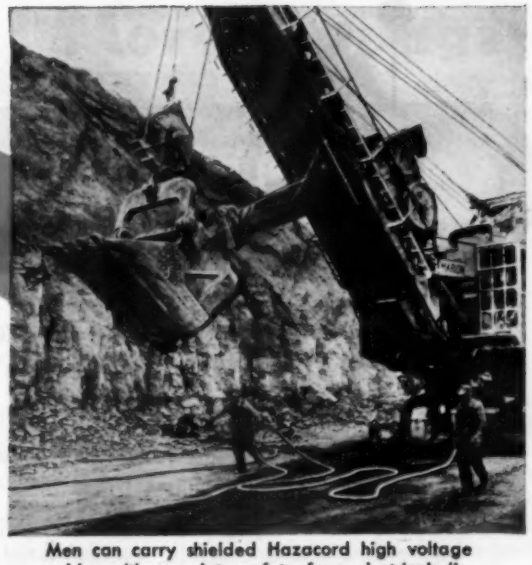
Bessemer

operation proves that Hazacords can take punishment

All the units in this operation are "big bruisers", selected for ability to operate on a big scale under the most difficult conditions. At this Bessemer Limestone and Cement Company limestone quarry the five-cubic-yard dippers can load at the rate of 400 tons per hour. The blasting, rock dust and rough ground mean that only top quality materials can keep all operating equipment from trucks to electrical cables continually on the job.

Operating at 4160 volts, the Hazacord Type SH-C, 5-kv portable cables have proved themselves able to withstand the worst treatment this operation can provide. The extremely durable Hazaprene ZBF sheath is excellent protection against the constant scraping, twisting and dragging that is normal in this type of operation. Hazard Keystone rubber insulation and shielded construction provide long electrical life and maximum protection for personnel when handling the cables.

No matter what the type of installation, there is a Hazard cable that will handle power distribution up to 15,000 volts. Ask your Hazard representative or write Hazard Insulated Wire Works, Division of The Okonite Company, Passaic, New Jersey.



Men can carry shielded Hazacord high voltage cables with complete safety from electrical discharges.

Hazacords are known for their reliability in blasting operations such as this where there is constant threat from impact and sharp uneven surfaces.

Hazacords give long service even when dragged continuously over rough, destructive terrain like that shown here.

HAZARD
insulated cables

PRODUCT OF OKONITE RESEARCH

2445

Legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

Last month a higher court rendered an important decision which clearly answers a question asked many times in the past by readers of PIT AND QUARRY. Substantially the question is: "What is the real and important benefit of employers carrying compensation insurance under the State Workmen's Compensation Act?" Another question is commonly asked by readers: "Is an employer who has insurance under the State Workmen's Compensation Act protected against damage suits by injured employees?"

First, it is interesting to observe that higher courts agree that if an employee is insured by the employer, under the State Workmen's Act such an employee may recover compensation for injuries and diseases, irrespective of testimony tending to prove that if the employee had used ordinary care, he may have avoided sustaining injury. No employee can recover *damages* from his employer unless he proves that the injury resulted from the employer's negligence. Thus state compensation laws are primarily intended to compensate employees for injuries and sickness under almost all circumstances, provided that the injury or sickness was sustained while the employee was working within the scope of his employment.

Another important point of the established law is as follows: While an employee can receive payment of compensation under state compensation law for practically all injuries, yet the higher courts consistently hold that an employee injured when he realized that he was doing dangerous work, cannot sue and recover damages from his employer.

For example, in a leading higher court case an employee sued the employer for damages, contending that the employer negligently supplied him with a defective respirator. In refusing to allow damages to the employee, the court said:

"We concur that plaintiff (employee) had assumed the risk."

Therefore, no employee is entitled to recover damages from an employer where the evidence indicates that the employee realized the danger associated with his work, and where such employee failed to use prudence and caution to avoid the injury.

A review of higher court cases disclosed that an employee is not entitled to recover from his employer damages if he is injured (1) while he is acting outside the scope of the regular employment; (2) or while he acts in disobedience to his employer's instructions; (3) or if he fails to use ordinary care to protect himself against the injury; or (4) if he quit his regular work and is injured while performing some act for his own benefit and not associated with the employment; or (5) if he is injured while off his employer's premises without authority.

Also, the higher courts hold that if an employer carries insurance under the State Workmen's Compensation Act, ordinarily no employee may sue and recover damages from his employer.

State Law Limits Compensation

Moreover, the amount of compensation payable under state laws to an employee is limited, whereas in many instances a jury may award excessive damages to an injured employee.

For instance, in *P. Rock Company v. Bowers,* 267 Pac. (2d) 556, the testimony showed facts as follows: One Bowers was an employee of the P. Rock Company. He was employed to drive a dump truck. His duties consisted of driving the truck loaded with rock from the pit to the crusher. While he was engaged in this employment, he was injured by a premature dynamite explosion. The explosion occurred while he was driving in the pit to get a load of rock. He was rendered unconscious as a result of the explosion. His nose and eyes were badly injured by the explosion, and his face is now disfigured and deformed.

Sprague & Henwood's "ORIENTED" Diamond Bits

Cut Faster
Last Longer
Cost No More

Most Economical Diamond Bits Ever Produced

After proving in our own world-wide contract drilling operations that Sprague & Henwood Oriented Diamond Bits (in which each individual diamond is set with its hardest edge or "vector" toward the work) cut much faster and last much longer than when diamonds are set at random, we made them available to other users and THOUSANDS are now cutting costs for diamond-drill operators throughout the United States and many other countries.

Specialized equipment and large-scale production enable us to furnish them in a wide variety of types and sizes, with either cast- or powdered-metal matrices, at no advance in price; making them the most economical diamond bits ever produced.

Bulletin 320 illustrates and describes all types and gives complete working data. Write for a free copy and tell us about your diamond drilling requirements. Our experienced executives welcome opportunities to make money-saving suggestions.

SPRAGUE & HENWOOD, INC. SCRANTON 2, PENNA.
BRANCH OFFICES: NEW YORK · PHILADELPHIA · PITTSBURGH · GRAND JUNCTION, COL. · BUCHANS, NEWFOUNDLAND

22-ton "Eucs" with quarry bodies haul stone for Ideal Cement Co. of Colorado. Top speed of this Model 36 TD, with full payload, is 32.5 m.p.h. Spring mounted drive axle and Allison Torqmatic Drive are important factors in stepping up production and profits at this operation.

EUCLID DIVISION
GENERAL MOTORS CORPORATION
Cleveland 17, Ohio

Higher Availability
More Tonnage
Lower Costs

On scores of mine and quarry operations all over the world the high job availability of Euclid equipment results in more tons hauled per shift. Because they're engineered and built for the toughest off-the-highway service, "Eucs" stay on the job longer, with less time out for servicing and repairs.

Dependable low cost hauling has made Euclid the preferred equipment for open pit operations in both the metallic and non-metallic mining fields. If you're interested in cutting your hauling cost for ore, overburden or waste, have your Euclid distributor prepare a production and cost estimate for your operation. There's a good chance he can show you how to haul more tonnage at lower cost.

Rear-Dump models are available in 10, 15, 22, 34 and 50 ton capacities with engines of 165 to 600 h.p. . . . semi-rigid or spring mounted drive axles . . . standard transmissions or Allison Torqmatic Drives.

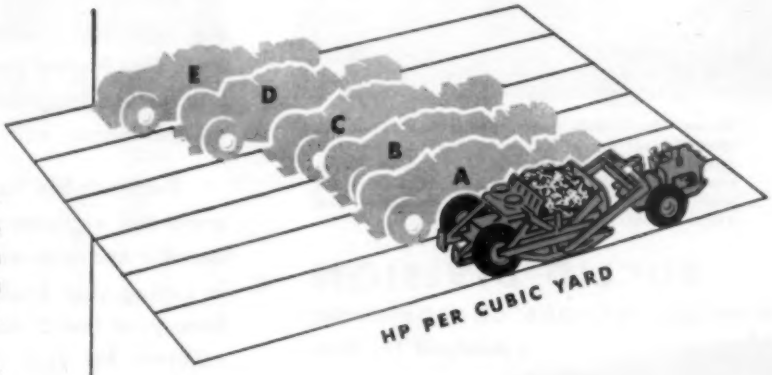
Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

GM GENERAL MOTORS

COMPARE POWER, BALANCE AND TRACTION AND

Why Allis-Chalmers Motor Scrapers



Examine the Allis-Chalmers TS-200 or TS-300 Motor Scraper point by point, feature by feature. Then let your Allis-Chalmers dealer demonstrate what these features mean to you in terms of bonus yardage and dependable performance.

See how fast Allis-Chalmers Motor Scrapers accelerate to "get the jump" on normal production from the moment they leave the pusher. See how safely they high-ball with a full load . . . how fast and steady they pull through the deep fill and return, up grade, to start a new cycle. Compare these Motor Scrapers on the basis of work done per dollar of investment. We think you'll agree an Allis-Chalmers Motor Scraper is your *number one* earth-moving value.

ACCELERATES FAST

The TS-200 develops 17.6 hp per cu yd struck capacity . . . the TS-300 develops 20—the highest ratios in their respective classes. With more power to move the payload, these machines get away from the pusher *fast* and maintain high average speeds throughout the entire cycle.

PERFORMANCE MAKES DOLLARS WHEN DESIGN

YOU'LL SEE

Out-produce

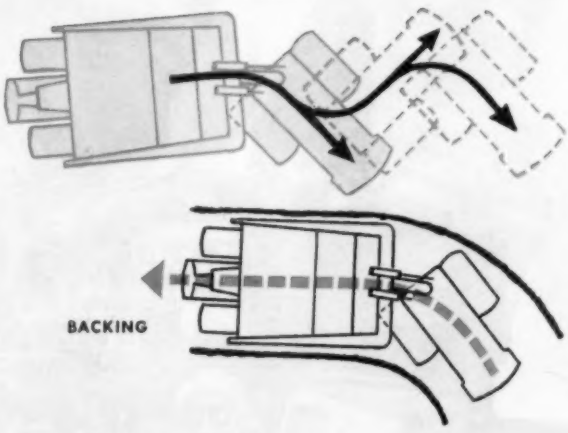
WEIGHT DISTRIBUTION LOADED

50 PERCENT 50 PERCENT

HIGHBALLS WITH THE PAYLOAD SAFELY

Loaded, the Allis-Chalmers Motor Scraper has equal weight on all four tires. This ideal weight distribution, together with low center of gravity, direct hydraulic steering which eliminates jackknifing, and big air brakes on all four wheels, allows the Allis-Chalmers Motor Scraper to take advantage of its high hp ratios by maintaining fast, yet safe haul speeds.

DUCK-WALKING



MANEUVERS EASILY

There are no steering brakes to rob you of tractive power. Instead, direct hydraulic rams turn the tractor in the desired direction of travel. Steering is sure and positive—even going down extremely steep slopes in loose footing.

By swinging tractor left and right with the steering rams, the Allis-Chalmers Motor Scraper can duck-walk through heavy going where others bog down.

Backing up in close quarters is simple. Two-wheel tractor has complete control over scraper body . . . can even change directions without forward or backward movement.

WEIGHT DISTRIBUTION EMPTY

34 PERCENT 66 PERCENT

COMPLETES THE ROUND TRIP QUICKLY

The return trip from the fill is usually uphill. That's where two-wheel design pays off. When empty, 66 percent of the Motor Scraper's weight is carried on the traction wheels. There are no front wheels to rob drive wheels of tractive weight or to create rolling resistance in heavy going. This enables the Motor Scraper to make the round trip faster and usually in higher gear than other units.

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TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

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MIX continuously, with the principle that is inherently automatic.

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A physician testified that as a result of the explosion Bowers' right nostril has been cut and is badly disfigured and nose is flattened, that there is a bad scar upon his face, and that the face shows a definite disfigurement.

The employer, the P. Rock Company, carries insurance under the State Workmen's Compensation Act which provides: "In case of an injury resulting in serious and permanent disfigurement of the head, face, or hand, compensation shall be payable in an amount to be determined by the Commission, but not in excess of Three Thousand ($3,000) Dollars."

In view of this law, the higher court decided that although Bowers suffered serious injuries and permanent face disfigurement, and he could not recover damages from the employer, his compensation from the state was limited to $3,000. This court said: "We think the weight of the evidence shows that as a result of the explosion respondent (Bowers) has sustained a serious and permanent disfigurement to his face. Under the above section of the statute the amount of compensation in cases of this character is limited to an award not to exceed the sum of $3,000."

High Damage Allowance

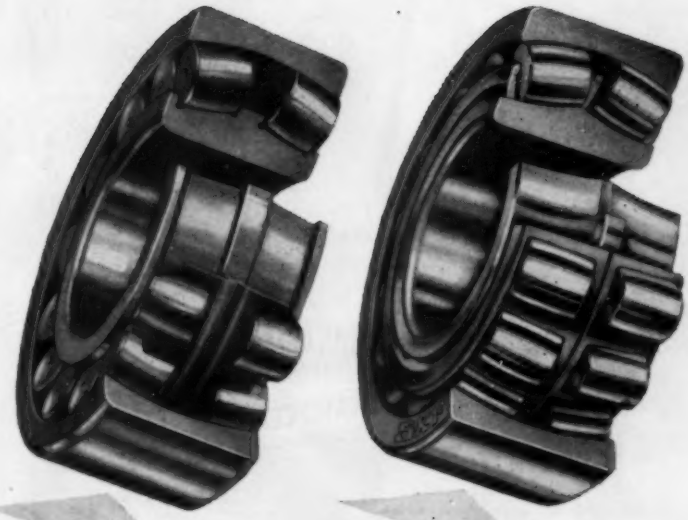
Of course, if an employee sues for damages, the court will make the award, which, sometimes is relatively high.

For example, in *Flanda Poiner Company v. Robinson,* 68 So. (2d) 406, the testimony showed facts as follows: A contractor's employee was seriously injured when engaged in his regular duties. The employee now has no control of his leg muscles, and in other respects is permanently disabled. The lower court, after listening to all the testimony, awarded the employee $225,360 damages. The higher court approved the verdict, and said:

"While it is true that the damage award is large, it does not necessarily follow that it is excessive."

Another important point of law decided by this higher court is that the above-mentioned employee was employed by a contractor. However, the higher court held the property owner liable in $225,360 damages because the employee's injury was sustained on the premises of the property owner.

Generally speaking, a person advanced in age is awarded relatively low damages. However, in *Shernan v. Shernan,* 69 So. (2d) 801,



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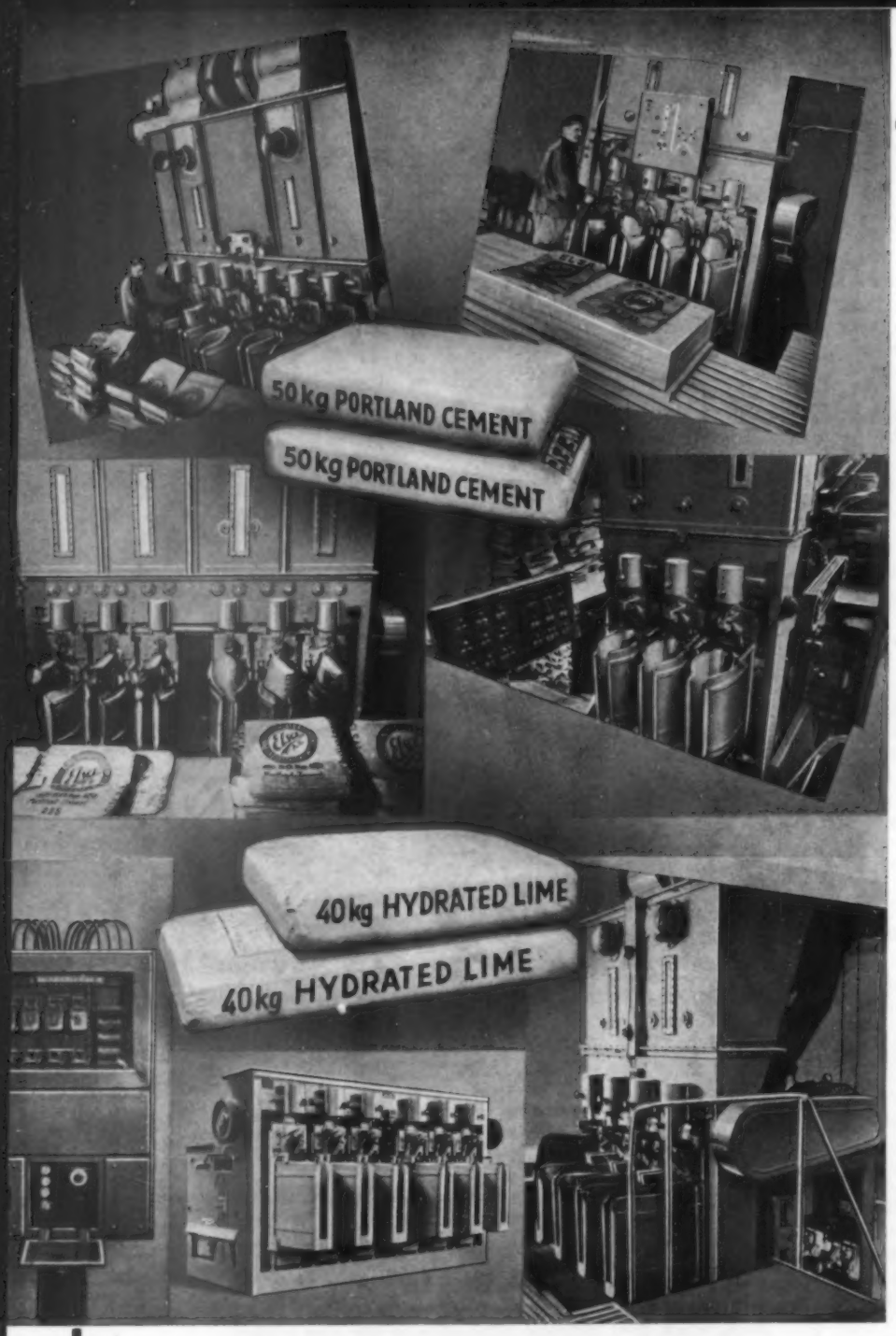

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the higher court awarded a woman 78 years old $12,500 damages for fracture of her ribs and other minor injuries.

In *Chicago v. Morg,* 116 N.E. (2d) 914, the higher court awarded $30,500 damages to a 66-year-old man for injuries to his arm, back, and head.

In *Oklahoma v. Phillips,* 265 Pac. (2d) 467, the higher court awarded $10,308 damages to a 51-year-old person whose ability to perform household duties was reduced.

In *Rose v. Diam,* 127 N.Y.S. (2d) 221, the higher court awarded and approved $45,000 damages for a toe injury.

In *Sling v. Dennis,* 101 Atl. (2d) 755, the higher court awarded $30,400 damages to a 24-year-old man who sustained a permanent injury to his left leg.

In *Carroll v. Lonza,* 116 Fed. Supp. 491, the higher court awarded $22,500 damages to an employee whose pelvis was fractured.

In *Meloy v. Texas,* 263 Pac. (2d) 879, it was shown that a pipe fitter was injured. Testimony showed his heel bones were injured. This interfered with his ability to walk normally. He sued his employer for damages. The higher court awarded the employee $65,000 damages.

In *Texas v. Mex,* 264 S. W. (2d) 518, a jury awarded $82,200 damages to a 29-year-old employee who suffered compound fractures of his shoulder.

In *Cameron v. Evans,* 62 N. W. (2d) 793, the higher court allowed a housewife $21,000 damage for a partial disability spine injury.

In *Stanford v. Freight,* 117 Fed. Supp. 903, the Federal Court awarded a girl $15,000 for injuries which paralyzed her legs.

In *Chambers v. Tobin,* 118 Fed. Supp. 555, the higher court allowed $30,000 damages to a person for permanent injury to the arm.

In *Rogers, v. Motor Freight,* 117 N. E. (2d) 451, the higher court awarded $45,000 damages to a physician who was 60 years old and severely injured.

In *Oklahoma v. Appel,* 266 Pac. (2d) 442, the higher court allowed a husband $20,000 damages for injuries to his wife.

In *Hutton v. Morgan,* 117 N. E. (2d) 405, the higher court awarded $13,000 damages to an employee who lost 20 lb. in weight caused by injury to the cervical spine and right shoulder.

In *Belsha v. Gral,* 127 N. Y. S. (2d) 571, the higher court approved a verdict of $70,000 for normal

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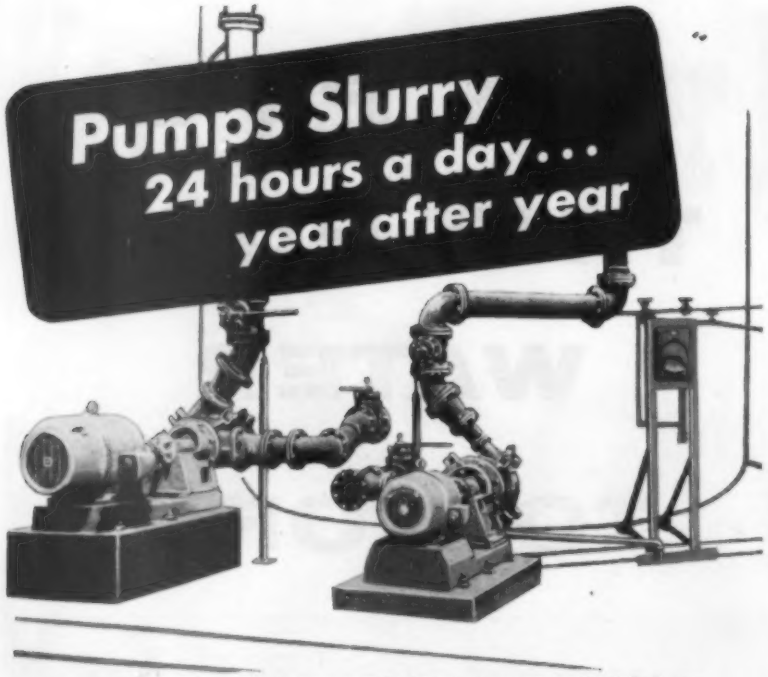

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property and personal injuries.

In *Carr v. N. Y.*, 127 N. Y. S. (2d) 761, the higher court awarded $30,000 for the loss of a leg and knee, and slight injuries to the other leg.

In *U. S. v. Luehr* 208 Fed. (2d) 138, it was shown that an employee suffered an injury which maimed him for life. He sued his employer for damages. The lower court awarded the maimed employee $125,000 damages, and the higher court approved the verdict.

Unjust Enrichment

Last month a higher court rendered an important decision to the effect that the seller of equipment cannot repossess it without making a reasonable money settlement to the purchaser, although the latter failed to make agreed payments, or otherwise breached his purchase contract.

For example, in *Bird v. Kenworthy,* 265 Pac. (2d) 943, the testimony showed facts, as follows: A sand and gravel operator named Bird purchased certain machinery and was credited with a down payment of $5,207.78. The balance, with interest, was payable in monthly installments of $2,017.08 each. The contract contained a clause as follows: "Should I (Bird) fail to make any monthly payment when the same is due, ...then the entire unpaid balance of purchase price shall become immediately due and payable. Should I return said chattels to you or if you repossess said chattels, then you may retain all payments previously made as compensation for use of said chattels...."

The testimony showed that Bird regularly made monthly payments until he owed only $6,051. Then he missed three monthly payments and the seller repossessed the equipment. Bird sued the seller.

During the trial the testimony showed that, as above indicated, the purchase price of the equipment with interest was $29,412.78, and that $22,832.67 had been paid on account by Bird.

The higher court held: "We conclude that the court should determine what damage respondent (seller) has sustained by reason of appellant's (Bird's) delay in making payments, and should determine the reasonable rental value of the equipment during the time it was in appellant's possession. Appellant (Bird) should be given credit upon the contract price for the amount of payments made under the contract, and should also be given credit for the reasonable value of the equipment at the time it was repossessed. From

American Explosives and Accessories Clear the Way for America's Super-Highways!

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Highway	No. of Contractors	Time	Types of Rock	American Explosives Used
Pennsylvania Turnpike Irwin to Carlisle	5	1939	hard limestone, shale, limestone, trap rock, sand rock	40%, 60% ammonia and gelatin dynamites
Philadelphia Extension Turnpike	5	1949-50	"	"
Western Pennsylvania Extension Irwin to Ohio Line	3	1951	Same, except no trap rock	"
West Virginia Turnpike Charleston to Princeton	4	1953-54	shale and sandstone, hard, medium, soft	40% ammonia and gel, plus semi-gels
New York Thruway Buffalo to New York City	6	1953-54	hard to soft limestone, gneiss rock, trap rock, hard shale	40, 60, 75% standard gel and semi-gels
Ohio Turnpike Eastern border to Indiana Line	1	1953-54	shale and limestone	40% standard gel

Express highways like the famous Pennsylvania Turnpike and the New York Thruway are revolutionizing motor transportation and highway construction methods.

Today, construction engineers and contractors have to think in terms of state-wide roads, over every type of terrain – presenting a wide variety of construction problems. They have to make sure that the equipment they use – the tools, machinery and explosives – will do the job wherever it happens to be.

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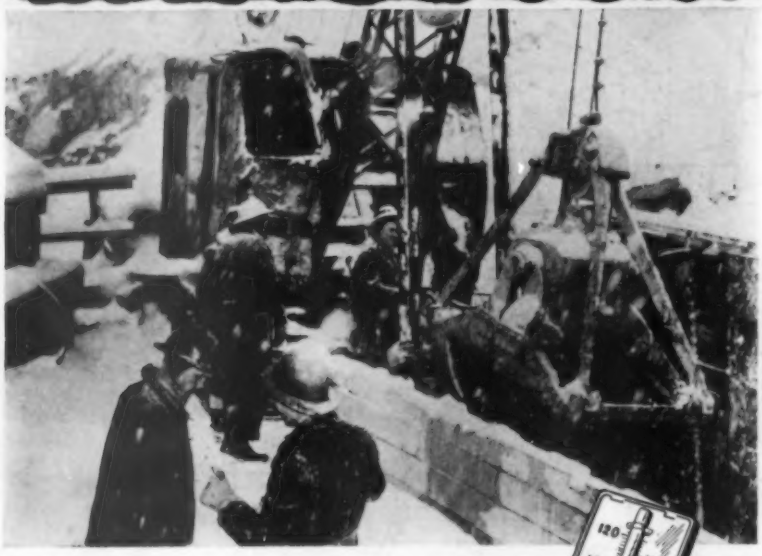

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these and any other factors relevant upon the issues of forfeiture, unjust enrichment and relief therefrom, the court should determine to what extent, respondent (seller) has been unjustly enriched and render judgment in accordance with such determination."

In other words, the higher court held that the seller must refund to Bird the difference between the total payments he made and the reasonable rental value of the equipment during the period of time he used it.

Contractor Defaults

Recently a contractor wrote as follows: "I had a contract to do certain cement work. When I was about finished with the job, the owner forced me to quit because I was building a cement wall 4 ft. high instead of 6 ft. high specified by the contract. What can I compel the property owner to pay me, and what is the law in such cases?"

Modern courts consistently hold that where a contractor has supplied work and labor for the erection or repair of a building under a lump sum contract, but has departed from the terms of the contract, he is entitled to recover for his services and materials, unless (1) the work that he has done has been of no benefit to the owner; unless (2) the work he has done is entirely different from the work which he has contracted to do; or unless (3) he has abandoned the work and left it unfinished.

For example, in *Kirkland v. Archbold,* 113 N. E. (2d) 496, the testimony showed facts, as follows: A contractor and a property owner signed a contract whereby the contractor agreed to construct certain alterations and to do certain repairs to the building for $6,000. The property owner refused to allow the contractor to plaster the house until he had replaced all wood lath with rock lath as called for by the contract and also before the outside walls were lined with rock wool. The contractor sued to recover the full value of the work he had performed.

It is interesting to observe that the higher court held that the contractor could recover from the property owner the full value of his work and materials furnished less the cost to the property owner to make the work comply with the contract which the contractor signed.

The court said: "If upon a contract a property owner actually receives useful labor, and thereby derives a benefit and advantage, over and above the damage which has resulted from a breach of the con-

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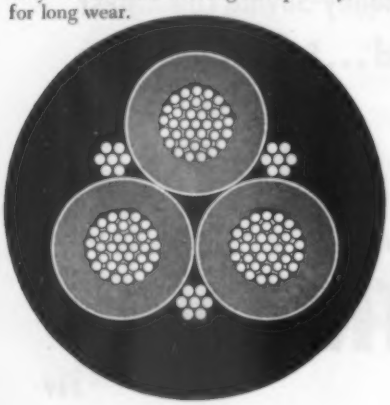

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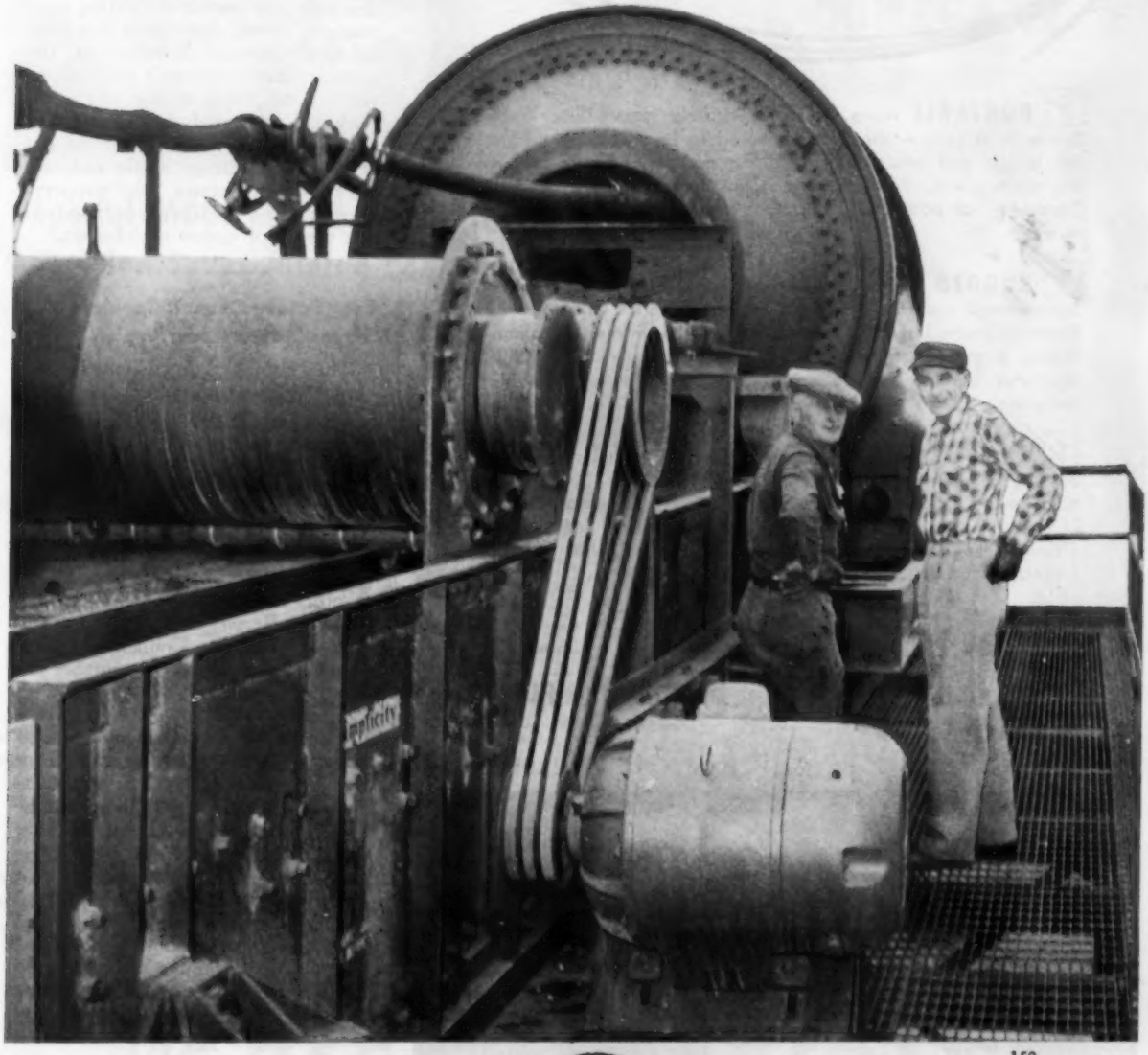
Simplicity screens play important part in remarkable new "sink-float" plant producing improved gravel

Progressive sand and gravel plants throughout the country are turning to the "sink-float" or heavy media separation method to produce an improved quality grade of gravel. This method insures the positive elimination of troublesome non-durable materials. The installation shown below was made by the Western Machinery Co. of San Francisco, Calif., at the Harry Pickett plant, Northville, Michigan. An important unit in this installation is a Simplicity 6' x 20' Horizontal Screen, one of the biggest of its type in operation today. This installation features a divided screen with ¾ of the deck carrying clean, concentrated gravel while the tailings move over the other ¼. Screen action and a secondary spray system assures positive media recovery over the 20' travel. Get complete information on Simplicity screens and other equipment by contacting your nearest Simplicity sales representative or write us in Durand, Michigan.



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tract by the other party, the law raises a promise to pay to the extent of the reasonable worth."

For comparison, see *Petersburg Fire Brick & Tile Company v. American Clay Machinery Company,* 106 N. E., 33, L.R.A. 1951 B. and Larkin v. Buck, 11 Ohio St. 561, 562. This higher court denied defaulting contractors all right of recovery even though the work enriched the property of the other party to the contract. These courts held that where a contractor defaults wilfully and maliciously, he deserves no payment.

On the other hand, an ever-increasing number of decisions of courts now modify the severity of this rule and permit defaulting contractors, where their work has contributed substantial value to the other contracting party's property, to recover the value of the work and materials expended, the recovery being diminished, however, to the extent of such damage as the contractor's breach causes the property owner. These decisions are based on the theory of unjust enrichment.

Two Safety Council Booklets Stress Industrial Safety

The National Safety Council's new book, *Safety Devices and Ideas,* describes and pictures more than 90 safety devices.

These devices were originally part of a safety gadget show presented during the chemical sessions of the 1953 National Safety Congress. Although designed for use in chemical plants, the devices have application in other industries as well.

Safety Devices and Ideas is available for $1.25 to Council members and $2.50 to others. For further information write the National Safety Council.

The skeptical worker who wants to know what he stands to gain from working safely will get a ready answer from the National Safety Council's new employee training booklet, *What's in It For Me?*

The 16-page booklet shows that everyone—the employer, the public, and the worker—gains from a good safety program. Stressing the theme that no on is immune to accidents if he is not careful, the booklet drives home the fact that it is not where you work but *how* you work that makes for safety.

Illustrated in four colors, the booklet uses few words but plenty of cartoons to put across its message. For a sample copy and quantity prices, write the National Safety Council, 425 N. Michigan Ave., Chicago, Ill.

SECONDARY BREAKAGE COSTS WITH AN OSGOOD-GENERAL MOBILCRANE

Special MOBILCRANE Dropball Operation Saves Mining Company

$40,000 a Year!

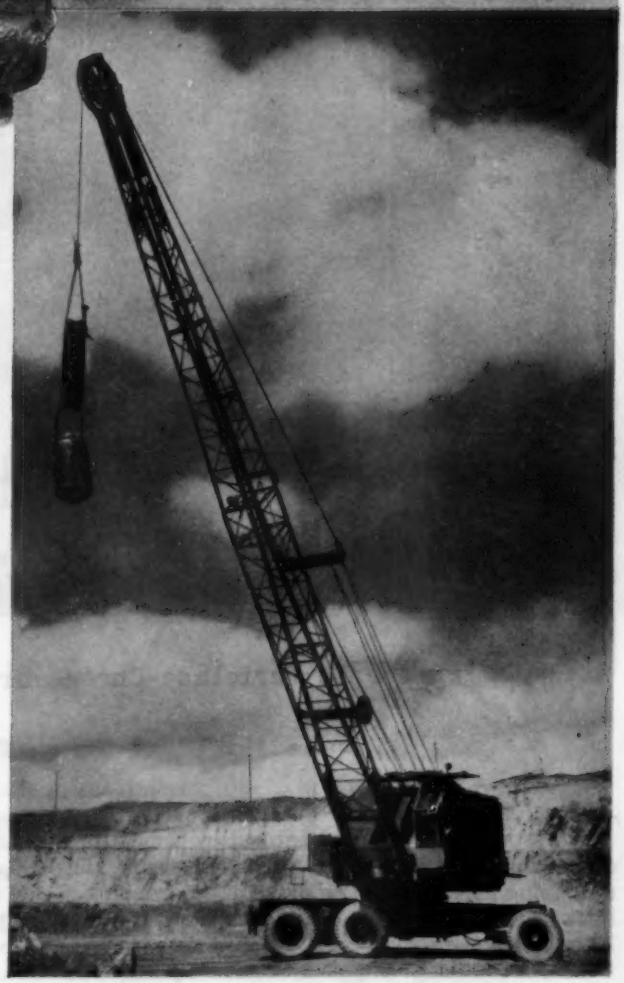
In only one year, a MOBILCRANE with dropball has produced over 300 PER CENT PROFIT for a large mining company, based on its past mudcapping operation.

After the first year of operation, more than 27,000 oversized ore fragments were broken in 261 days of operation. The net savings amounted to $1.17 a fragment.

A special Osgood MOBILCRANE, Model 825, was used. It was delivered with a Rud-O-Matic tag line and auxiliary lighting plant so it can be used for clamshell or other work as emergencies arise. Its lifting capacity is 35 tons at a 12-foot radius and is equipped with an independent boom hoist and 60-foot boom.

Performance records show the MOBILCRANE has adequate stability for dropball work, without the use of outriggers. The 6,500-pound dropballs used require only 2 or 3 blows to break up fragments to suitable sizes for the ore crusher, thereby eliminating all secondary blasting and providing other savings and advantages that previously had not been possible. Maintenance material costs for the first year have been low. As a result of this operation, many similar MOBILCRANE units have been profitably put to work by other companies.

GET COMPLETE DETAILS on the time and cost analyses of this special MOBILCRANE dropball operation. Write for your free copy today.



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½ to 2½ cubic yards, truck cranes from 15 to 25 tons, Mobilcranes from 25 to 45 tons and log loaders.

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1 to 60 cu. yds.

Plant	Average service Permanente Brick	Average service 70% alumina brick	EXTRA SERVICE with Permanente Brick
1	14 months	1 month	13 months
2	24 months	12 months	12 months
3	15 months	3 months	12 months
4	15 months	4 months	11 months
5	14 months	3 months	11 months
6	14 months	3 months	11 months
7	12 months	4 months	8 months
8	15 months	7 months	8 months
9	7 months	1 month	6 months
10	12 months	6 months	6 months
			Average: 9.9 months

Average 9.9 months extra hot zone life!

with Permanente Periclase-Chrome brick

THE FIGURES above were furnished by cement producers during a field check of rotary cement kilns now using Permanente Periclase-Chrome A burned brick. Plants checked have a total capacity of nearly 27 million barrels.

This dramatically improved service is possible because Permanente Brick is *especially designed* for hot zone linings to provide great volume stability under loading, high resistance to spalling and to chemical attack by cement clinker at high temperature. Think what this means in shutdowns eliminated!

In addition, Permanente Periclase-Chrome A Brick takes a good coating in the kiln, usually without inducement.

If you are not yet using Permanente brick, let us show you *now* how its superior performance can give you increased clinker production at lower cost!

Call or write *Kaiser Chemicals Division,* Kaiser Aluminum & Chemical Sales, Inc. Regional sales offices: OAKLAND 12, California, 1924 Broadway; AKRON 8, Ohio, First National Tower; CHICAGO, 518 Calumet Bldg., 5231 Hohman Ave., Hammond, Ind.

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Apex is an economical ammonium nitrate explosive with a patented assembly having a water-proof gelatin core that offers these advantages:

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- **Fluted-end cartridge permits easy loading.**
- **A wide range of strengths and velocities to choose from. Apex is available in 8 strengths: each in low, medium and high velocity.**

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traffic news

CENTRAL TERRITORY RAILROADS

Freight Traffic Committee

Docket 90772 (2) — Proposed to establish a rate of 127 cents per net ton on crushed stone, carloads, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Findlay, Carey, and Spore, Ohio, to Cleveland, Ohio.

Docket 90788—Proposed to establish a rate of 85 cents on sand and gravel from Terre Haute, Ind., to Clay City, Ind., and a rate on crushed stone of 94 cents from Greencastle, Ind., to Clay City, Ind. Both of these rates are not subject to ExParte 175-B increase and are in open-top equipment, bulk, minimum weight of car 90 percent of marked capacity of cars except that when cars are loaded to full cubical or visible capacity, actual weight will apply.

Colorado-Wyoming Committee

Docket X 491 (C)—Proposed to establish a rate of $1.00 per net ton on sand and gravel, carload minimum weight 90 percent of marked capacity of car except that when car is loaded to full visible capacity, full minimum weight will apply from Pueblo to Husted and Breed, Colo. Rate is subject to X-175-B increase.

EASTERN RAILROADS

General Freight Traffic Committee

Bulletin C 1609-34 (Shipper) — Proposed to establish a rate of $3.47 per net ton in open-top cars and $3.96 per net ton in closed cars on limestone, natural, ground or pulverized, unburned, carloads, minimum weight 30 tons from Woodville, Ohio, to Warton and Barrett, W. Va. Rates are subject to ExParte 175-B increase.

Bulletin C 1609-35—Proposed to establish a rate of $3.34 per net ton in open cars and $3.84 per net ton in closed cars on limestone, natural, ground or pulverized, unburned, minimum weight 30 tons from Woodville, Ohio, to Wedron, Ill. This rate is subject to ExParte 175-B increase.

ILLINOIS FREIGHT ASSOCIATION

Docket IRC 511-1399 (M R P 7197)—Proposed to establish a rate of $1.10 per net ton on limestone, ground, in closed cars, minimum weight 90 percent of marked capacity of car, except that when loaded to full visible capacity, in which case actual weight will govern, but not less than 30 tons from Joliet, Ill., to Waukegan, Ill. Rate not subject to X-175 increase.

Docket IRC 511-1400— Proposed to establish a rate of $1.37 per net ton on crushed stone, passing through a one-in. screen, not suitable for concrete construction, from Joliet, Ill., to Kewanee, Ill. Minimum weight 90 percent of marked capacity. Actual weight will apply, but not less than 30 tons. Rate is subject to X-175-B increase.

Docket IRC 511-1410 — Proposed to establish a rate of $1.14 per net ton on agricultural limestone, in carloads, open-top equipment, minimum weight 90 percent of marked capacity of car from Lehigh, Ill., to Mahomet and Rising, Ill. Rate is subject to X-175-B increase.

Montana Lines Committee

Docket A 111 (S) — Proposed to establish rates on lime, common, in carloads from Calcium, Mont., to MacKay, Idaho—39 cents per hundredweight, minimum 15 tons; 31 cents per hundredweight, minimum 30 tons; and 25c per hundredweight, minimum 50 tons.

NORTH PACIFIC COAST FREIGHT BUREAU

Docket X NC 4239 (S)— R e - quest is made for a rate of $3.16 per net ton on limestone from Durkee and Nelson, Oreg., to Toppenish, Wash. Minimum weight of a car is 40 tons.

Docket NC-4250 (S) — Proposed to establish rates on lime common, carload, from Calcium, Mont., to Dolomite Spur, Wash.—33 cents, minimum 50 tons; 41 cents, minimum 30 tons; 43 cents, minimum 20 tons.

Docket NC 4294 (S)—A request has been made for a rate on limestone, in open cars, from Jacques, Idaho, to Salem, Oreg.—23 cents

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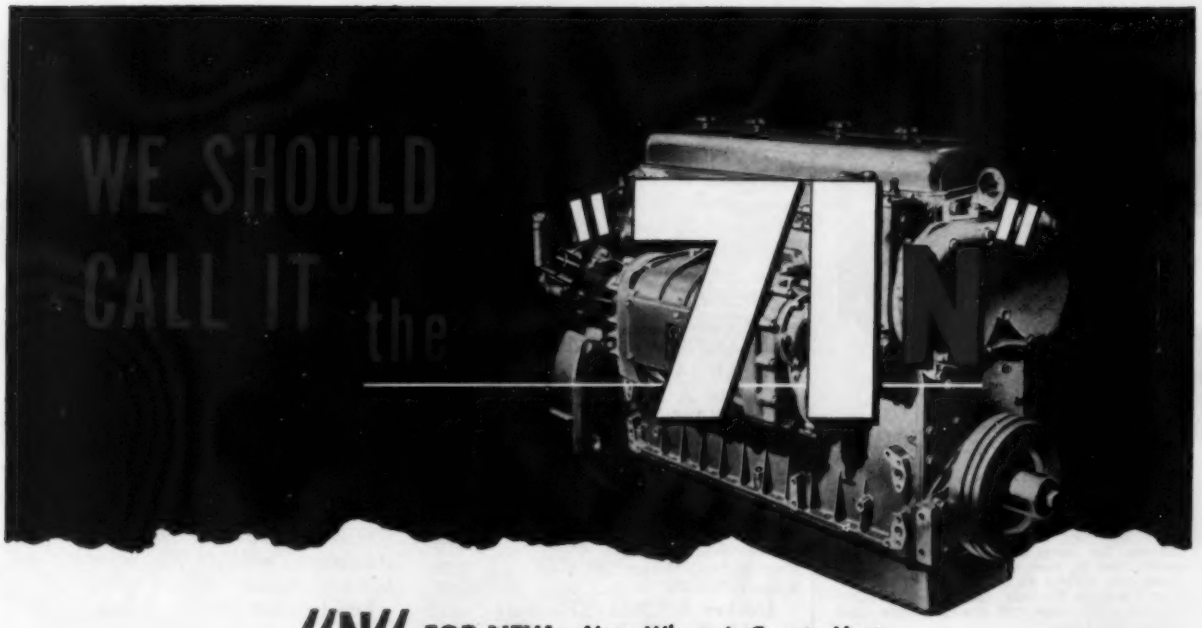

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The GILSON Screen cuts out error and guesswork in meeting sizing specifications for crushed stone, gravel, slag, coal, ores, and similar materials.

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MALINTA, OHIO

per hundredweight and to Springfield, Oreg., 25 cents per hundredweight, minimum weight of a car 50 tons.

PACIFIC SOUTHCOAST FREIGHT BUREAU

Docket 5091 (S) — Request has been made for a rate of 38 cents, minimum 15 tons, on lime, common, carloads from Sloan and Henderson, Nebr., to Yuma, Ariz.

WEEKLY DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSOCIATION PROPOSALS

Docket A 19196 (a) — Proposed to establish following rates on stone, crushed, in closed cars, carload minimum weight 40 tons, from Lithonia, Ga., to the following points:

Ashland, Catlettsburg, Ky.	$4.41
Beckley, Hinton, W. Va.	$4.96
Charleston, Logan, W. Va.	$4.79
Huntington, Milton, W. Va.	$4.57
Rupert, W. Va.	$5.07

Docket A 12814 (Southwestern Freight Bureau Proposal 69154)— Proposed to establish a rate of 413 cents per net ton on limestone, carloads, Gantts Quarry, Ala., to Monroe, La.

Docket A 19237 (c)—Proposed to establish a rate of 486 cents per net ton on crushed stone in closed cars, Lithonia, Ga., to St. Louis, Mo., minimum weight of a car 40 tons.

SOUTHWESTERN FREIGHT BUREAU

Docket 69274 (s) (S)—Proposed to establish a rate of $3.10 per net ton on limestone, Marble City, Okla., to Waco, Tex., on limestone, ground, in closed cars or in open cars protected by tarpaulin or other protective covering, in 60-ton minimum carload lots. This rate is not subject to X-162-6-8 or 175 increase.

Docket 69338 (S) — Proposed to establish a rate of $8.31 per net ton on limestone, crushed or ground, Mosher, Ste., Genevieve, Mo. to Winnepeg, Man., Can. Rate not subject to X-162-6-8 increase.

Docket 69467 (s) — Proposed to establish a rate on roasted dolomite from Dolling Siding, Mo., to Charleston, S. C., of 1003 cents per net ton, minimum weight 90 percent of marked capacity of car, except that when cars are loaded to full visible capacity, actual weight will apply. Rate not subject to X-162-6-8 increases.

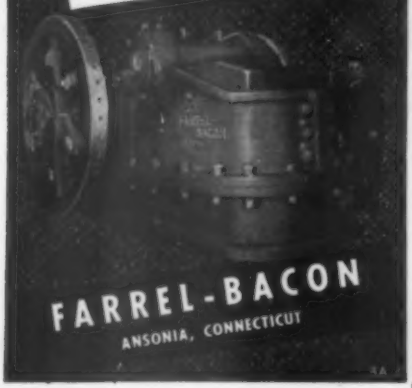
TRANS-CONTINENTAL FREIGHT BUREAU

Docket B-1436 (C)—Proposed to establish a rate of $16 per net ton on refractory products, in 30-ton minimum carloads, except that when car of less capacity is furnished, then

FARREL-BACON JAW CRUSHERS

SIZES 60"x48" to 10"x7"

Optional design features include: (1) Meehanite frame, sectionalized when necessary; (2) removable water-cooled bearings; (3) improved design of swing-jaw bearing; (4) force-feed oil lubrication, or circulating system if desired; (5) split flywheels; (6) flat or V-belt drive. *Write for further details or engineering assistance.*



FARREL-BACON
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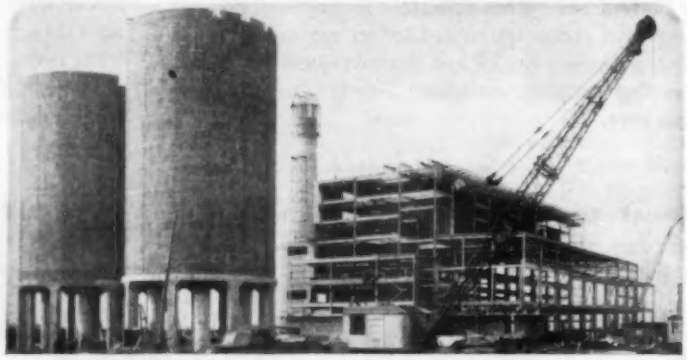

2 big N. & F. coal bins at Dow Chemical

These 36' x 60' Neff & Fry bins for boiler-room coal have been in use for six years although the photograph was taken at the time of construction. They are located at the Midland, Mich., plant of Dow Chemical Co.

We are proud to have erected bins for many prominent North American firms. The bins are used for handling ashes, ore, coal, grain, sand, clay, minerals, stone, wood chips, and scores of other flowable bulk materials.

Our bins are often termed silos or tanks. Their advantages are explained in a folder entitled, "Bins With the Strength of Pillars." Ask for it and read it. Then talk to users. We'll be glad to give you the names of the nearest ones.

Write, wire, or phone us now while the subject is on your mind.

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NEFF & FRY ➧ SUPER-CONCRETE STAVE STORAGE BINS

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P&H years-ahead design and construction make the big difference. You get the extra strength of high-tensile alloy steels to withstand the pounding of repeated shock loads . . . the solid stability that lets you exert more power at tooth point. And only P&H has *Magnetorque* to swing you through five loads to the other man's four. It's the most dependable swing ever built — lasts the life of the machine!

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with P&H *MAGNETORQUE** ELECTRIC SWING

- **15-25%** *faster* . . . . . .
- **100%** *free of friction and wear!*

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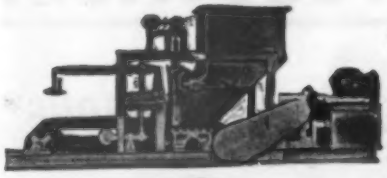

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Fast, accurate and automatic, these units insure high product uniformity and record output. Easy to install and operate, they provide years of continuous, economical service.

Available with remote controls for showing and changing feed rate, and total weight recorders.

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marked capacity of car will govern from Antioch, El Monte, Oakland, and Pomona, Calif., to Louisville, Ky. Rate is not subject to X-162-6-8 increase.

Docket B 1436—Proposed to publish a rate on refractory products, broken or ground, in carload lots of $16 per net ton, minimum weight of a car 30 tons, except when car of less capacity is furnished, in which case marked capacity of car will govern from Antioch, El Monte, Oakland, and Pomona, Calif., to Louisville, Ky., tariff 2.

TRUNK LINE TERRITORY RAILROADS

Freight Traffic Committee

Bulletin N 4611M-19 (Carrier) —Proposed to establish a rate of 75 cents per net ton on stone, broken or crushed, in bulk, in open-top equipment, not protected by tarpaulin or other protective covering, minimum weight 90 percent of marked capacity of car from Oriskany Falls, N. Y., to Smyrna, N. Y. This rate is issued to meet motor truck competition and is not subject to ExParte 175-B increase.

Western Trunk Line Committee

Docket D-25-411 (s) — Proposed to establish a rate of 61 cents per 100 lb. from Blue Rapids and Medicine Lodge, Kans., to Caledonia, Ont., Can., on gypsum filler, Keene's cement, stucco, plaster of Paris and/or wall plaster, in mixed or straight carloads as described in item 300 of Western Trunk Line tariff 324-B. Rate is subject to X-175-B increase.

Docket X-E-41-2089 (S) — Proposed to establish a rate of 108 cents per net ton on gravel, sand, road or building construction, from Afton, Hartland, Janesville, Madison, Gravel Pit, North Lake, Slinger, and Wausau, Wis., to Sparta, Wis. Rate is subject to X-175-B increase.

Docket X-E-41-2094 (S) — Proposed to establish a rate of 75 cents per net ton on crushed stone in carloads, open-top cars, from Mordaunt, Mo., to Hamburg, Ia. Subject to ExParte 175-B increase.

Docket X-E-41-2103 (S) — Proposed to establish a rate of 104 cents per net ton on crushed stone in carloads, from Mooresville, Mo., to Unionville, Mo. Rate is subject to X-175-B increase and will expire on June 30, 1955.

Docket E 41-2093 (C) — Proposed to cancel the rate of 235 cents, allowing the natural rate of 266 cents per net ton to apply on limestone, ground, in closed equipment from Hannibal, Mo., to Kansas City, Mo. Rate is subject to X-175-B.

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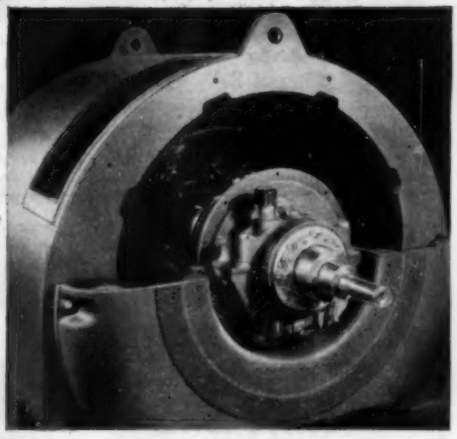
more protection with full accessibility



* New Allis-Chalmers slip-ring motor with inspection cover and upper half of end shield removed. Note accessibility of brushes, protection of bearing.

ALLIS-CHALMERS LARGE SIZE SYNCHRONOUS AND WOUND-ROTOR MOTORS have been completely redesigned with longer stator yokes and shorter end shields. Collectors and brushes are located inside the yoke for protection against physical damage, dripping moisture, dust and dirt.

Capsule-type bearings give better bearing protection, too. The upper half of the end shield may be removed for inspection or cleaning of the interior of the motor without disturbing the exciter or exposing the bearing to the ravages of dirt, dust and oil contamination.

All leads enclosed — Both primary and secondary winding leads are brought out through separate conduit boxes. There is no loose wiring . . . no exposed leads anywhere.

Easy maintenance — Even though the new design offers maximum protection to brushes and collectors, internal parts are fully accessible for inspection and maintenance through large openings in the stator yoke. Opening covers are readily removed and are secured during operation by easy-operating, self-locking fasteners.

Get details now — This new design is available from approximately 250 hp at 300 rpm and up, in drip-proof and splash-proof construction. Call your Allis-Chalmers representative for complete details or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 05R8183. A-4464

ALLIS-CHALMERS

trade notes

William Irrgang, executive vice-president of The Lincoln Electric Company, Cleveland, Ohio, has been elected president and general manager, succeeding James F. Lincoln, who was named chairman of the board. John C. Lincoln, founder of the company, was elected honorary chairman of the board and treasurer. Other officers are as follows: John S. Roscoe, executive vice-president; A. F. Davis, vice-president and secretary; George Landis, vice-president.

Black Hills Oldsmobile-Cadillac, Inc., Rapid City, S. D. and The Roadway Mounting and Equipment Co., 21177 Mound Rd., Van Dyke, Mich., have been appointed distributors of truck bodies and hoists by The Heil Co., Milwaukee, Wis.

E. T. Larsen and Dr. W. C. Rueckel have been named vice-presidents of the Henry J. Kaiser Company, Oakland, Calif., parent company of the Kaiser group of industries.

Mr. Larsen, as manager of engineering, will be responsible for all engineering activities for Kaiser Engineers, a division of the parent firm. He joined the Kaiser organization in 1941.

Dr. Rueckel, formerly a division manager for Kaiser Engineers, has been made manager of development and sales. His responsibilities will include general development work, including the new oxygen steelmaking process and work on atomic energy. Prior to joining Kaiser, he was vice-president in charge of international development of the Koppers Company, with activities centered in the New York-Pittsburgh area.

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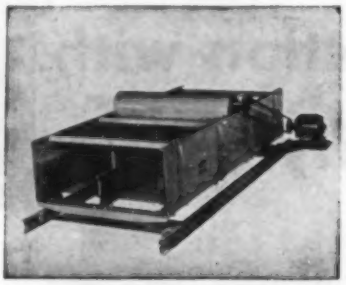
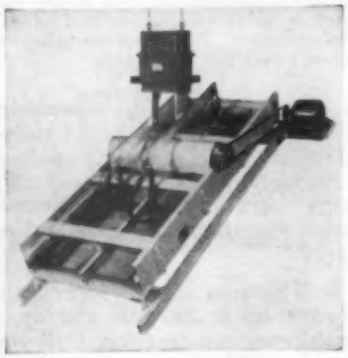


Type "MR" 42" x 96" 2-deck



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RACINE — WISCONSIN

James D. Helm has been appointed sales manager for mobile communication equipment and special accounts by the General Electric Company, Syracuse, N. Y. With his headquarters at Electronics Park, Mr. Helm will direct the national sales of G-E two-way radio equipment.

Neal F. Harmon, formerly sales manager of two-way radio equipment at Syracuse, N. Y., has been appointed southwestern regional manager for communication equipment, with offices at 3200 Maple Ave., Dallas, Tex.

N. J. Connor, has been named manager of the New York district office of The Babcock & Wilcox Company, New York, N. Y., replacing H. E. Martin, who has resigned. Mr. Connor joined Babcock & Wilcox in 1928, and has been assistant manager of the office since 1946.

N. J. Connor

W. H. Pender

W. H. Pender has been appointed manager, belting sales, Quaker Rubber Corp., a division of H. K. Porter Co., Inc., Philadelphia 24, Pa. He has been with Quaker since 1947, and was before this promotion field engineer for conveyor and elevator belting. He has 20 years of experience in the rubber industry, concentrated primarily in the manufacture and sale of belting.

International Harvester Company, Chicago, Ill., has signed to sponsor *The Halls of Ivy,* marking Ronald Colman's long-awaited television debut. The series of half-hour programs will be seen in the nation's top markets, starting in October.

Co-starring with Mr. Colman will be his wife, Benita Hume, both of whom played the leads in the famous radio version of *The Halls of Ivy,* which swept top awards, as well as critical acclaim for its clever, amusing, and gently sophisticated stories of a college president.

James T. Maher has been appointed general staff assistant in public relations for The Texas Co., New York, N. Y.

Louis T. M. Ralston, president of Industrial Brownhoist Corp., has been elected president of the "Quick-Way" Truck Shovel Company of Denver, Colo. Both companies were recently acquired as wholly-owned subsidiaries of Penn-Texas Corporation.

The new chairman of the board of "Quick-Way" is Oscar L. Chapman of Denver, Colo. Luke E. Smith, founder and former president, will continue as consultant. Wilson H. Madden has been appointed vice-president and general manager. William R. Knowles of Geneva, Ill., has been elected treasurer.

"Quick-Way's" base of operations will continue to be Denver; and Industrial Brownhoist's plants in Bay City, Mich., and Elyria, Ohio, will continue to operate as in the past.

Louis T. M. Ralston

Frank M. Capp

Frank M. Capp, former assistant manager, has been appointed manager of sales engineering, Core Drill Division, Joy Manufacturing Company, Pittsburgh, Pa., succeeding the late J. B. Martin. Mr. Capp joined the company in 1941. He is succeeded as assistant manager by James M. Barrett.

John G. Watson, former sales engineer, has been named district manager at Michigan City, Ind., for Baldwin-Lima-Hamilton Corp., Construction Equipment Division, Lima, Ohio. His territory includes the Calumet district in Indiana, Illinois, Missouri, Kansas, and lower Michigan.

Gene A. Zwerner has been appointed district manager of Link-Belt Company's Washington, D. C., office. He replaces C. R. Heller, who has retired. For the last four years, Mr. Zwerner has been sales manager for Link-Belt Africa, Ltd., a wholly-owned subsidiary.

Dean G. Abercrombie will manage the Buffalo, N. Y. office of the Multiwall Packaging Div. of St. Regis Paper Co., New York, N. Y. He succeeds Kenneth L. Moore, who is no longer with the company.

George L. Read has been appointed Canadian sales manager for the Bucyrus-Erie Company, South Milwaukee, Wis. He takes over responsibility for the sale of all products except water and oil-well drills in all provinces of Canada east of and including Saskatchewan. His new office and residence is located at 1 Swindon Road, Toronto 18, Ont., Canada.

Charles P. Gruet is the new Northeast district representative for the Hyster Company, Portland, Oreg. He has been in the heavy equipment and construction field for 24 years.

An improved parts and service department of the Construction Equipment Div. of Blaw-Knox Co., is now in full operation at Springdale, Pa. S. M. Pare is manager.

Howard H. Buckingham has been appointed Mid-West and South-West trailer axle sales representative for the Timken-Detroit Axle Division of the Rockwell Spring and Axle Company, Detroit, Mich. He is a 16-year veteran of the trucking industry, and has been recently serving the company as a service-sales representative in the eastern part of the United States.

Get more footage at lower cost with

SPANG

ALLOY-STEEL

Weldless Jars

...forged from ONE PIECE of Alloy Steel

NO WELDS TO BREAK . . .

Each SPANG WELDLESS JAR is forged from a single piece of selected alloy steel and is scientifically heat-treated and tempered to obtain proper hardness and toughness in the rein sections for maximum strength and wear resistance in the most severe drilling service.

The joints, heat-treated and precision machined, are stronger and more durable, assuring fewer fishing jobs. Records over the years show up to four times more footage with SPANG Alloy-Steel WELDLESS JARS.

For further information on weldless jars, and for FREE CATALOG of other SPANG cable tools, contact your nearest Dealer or write direct to:

The HIGHER STANDARD

SPANG & COMPANY

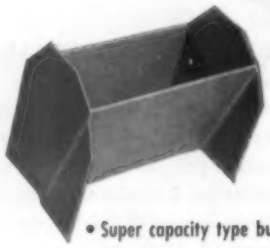
DEPT. M-3 • BUTLER, PENNSYLVANIA

For over 60 years Manufacturers of Spang Weldless Jars and a Complete Line of Cable System Drilling and Fishing Tools for Oil and Gas Wells, Water Wells, Prospect Drilling and Shot Blast Holes.

RUGGED AND DEPENDABLE AT low cost

• Salem type buckets

• Continuous type buckets



• Super capacity type buckets

Standard high quality steel elevator buckets are available in all styles, types, sizes and gauges for replacement as well as new installations. For real economy and immediate service, get acquainted with the Standard line today.

Write for new catalog showing the complete line of Standard buckets and prices.

The Standard Metal Mfg. Co. SINCE 1921

STANDARD METAL MFG. CO.
111 Center St., Malinta, Ohio

J. Henry Schindler Jr, has been named manager of export sales of explosives for the Hercules Powder Company, Wilmington, Del. He succeeds J. R. St. Clair, who is retiring after 35 years of service.

Well known as an explosives engineer, Mr. Schindler was recently called to Panama to make recommendations on the use of explosives to eliminate the crack that occurred at the Gaillard Cut of the Panama Canal.

J. Henry Schindler, Jr.

Ralph K. Behr

Ralph K. Behr, who has been attached to the Chicago district office for 17 years, becomes manager of the Boston district office of The Babcock & Wilcox Company's Boiler Division, replacing H. K. Dean, who is retiring after 31 years of service. Mr. Dean has been manager of the district office in Boston for the last 13 years.

Edward F. Needham has been appointed district sales manager of the Denver area for the Ramapo Ajax Division of the American Brake Shoe Company, New York, N. Y. A sales representative for the division since joining the company in 1937, and a native of Denver, Mr. Needham will continue to be located at the company's Denver office at 1031 Fifteenth Street. W. C. Muller will continue as western sales manager, but has transferred from Denver to 1010 Russ Bldg., San Francisco, Calif.

A new color strip film just released by Athey Products Corporation, Chicago, Ill., describes in detail the applications, construction, and design features of a new rear-dump trailer. The film is accompanied by an interesting narration that tells what each point does and how it aids the user.

The movie has been distributed to Athey-Caterpillar dealers, who are arranging showings throughout their areas. Readers are invited to ask for a showing by writing Athey Products Corp., 5631 West 65th St., Chicago 38, Ill., or by calling their local Athey-Caterpillar dealer.

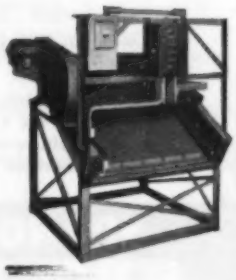
W. E. Schauer, former administrative assistant in the financial department, has been appointed assistant secretary of Chain Belt Company, Milwaukee, Wisc., succeeding William N. Brandt, who has retired.

A new Bemis Bro. Bag Company multiwall paper shipping sack manufacturing plant, under construction since October, 1953, has started operations at Wilmington, Calif. It replaces the former Wilmington plant which the company had operated for 22 years.

At a recent meeting of the board of directors of the Iowa Manufacturing Company, Cedar Rapids, Iowa, the following officers were elected, promotions going to several key men who have been with the company for many years: Howard Hall, president; Kenneth Lindsay, executive vice-president and director of sales and advertising; James F. Plumb, vice-president and treasurer; B. T. Perrine, secretary; A. C. Gossard, vice-president and domestic sales manager; C. O. Norberg, vice-president, parts and service; H. C. Pollitz, vice-president, engineering; and J. W. Riley, vice-president, production.

HEATED SCREEN

Cut Your Damp Screening Costs to Rock Bottom



For the screening of difficult damp fines, such as you encounter with lime, ag-lime and some silica sand deposits, the Leahy NO-BLIND Vibrating Screen equipped with FlexElex electric heating is your best bet.

FlexElex keeps the screen wires dry and prevents those annoying coatings that lead to blinding. In addition, differential vibration of the screen snaps wedging intermediate size particles loose 1600 times per minute. The combination of these two Leahy features keeps your screen mesh wide open for long hours of full capacity, accurately sized production.

Send for full information and proof.

THE DEISTER CONCENTRATOR COMPANY
911 Glasgow Avenue — Fort Wayne 3, Indiana

"Sinclair TENOL has permitted remarkable performance!"

says Wayne Pressnell, President, Columbia Rock Products Corp., Columbia, Tenn.

Producing commercial stone and agricultural limestone in this 50' quarry is rough on the equipment of the Columbia Rock Products Corporation . . . *yet mechanical failures are rare.*

Mr. Pressnell writes, "We operate 11 diesel units including Euclid Trucks, Motor Patrol Graders, Bulldozers, Draglines and Shovels – all lubricated with Sinclair TENOL®. One Lorain Shovel, powered by Caterpillar engine has been credited with 5000 operating hours over a 2-year period without any mechanical failure. Another of our shovels has chalked up 20,000 operating hours over a 10-year period – *10,000 hours without overhaul.* Sinclair TENOL has certainly helped our equipment give us a remarkable performance record."

Mr. Pressnell's choice of Sinclair TENOL has helped slice off a large part from the maintenance costs of his company. Why not let TENOL do the same for you. Phone your local Sinclair Representative or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, N.Y.

SINCLAIR TENOL
prolongs engine life

BLAST THE EXCESS OFF YOUR COSTS WITH

Use the coupon below for a demonstration, right at your own quarry, of King Detonite's cost-cutting ability. When you blast with Detonite, you get important reductions in four major operating costs:

1. BLASTING COST

KING DETONITE is a slow-detonating powder. Its slow, heaving, spreading action lifts and fully displaces the burden. High cost of secondary drilling and shooting is greatly reduced.

2. ROCK-HANDLING COST

KING DETONITE breaks up rock into sizes that permit shovels to dig efficiently at all times, thus reducing handling costs to a minimum.

3. EQUIPMENT MAINTENANCE COST

KING DETONITE's proper fragmentation means less wear and tear on expensive equipment . . . less cost for maintenance and replacement.

4. PROCESSING COST

KING DETONITE's proper fragmentation allows your crushers to operate at top capacity, thus lowering cost of processing the stone.

4 WAYS TO CUT COSTS

King Powder Co., Inc.
Cincinnati 1, Ohio

SHOW ME how DETONITE will cut my costs 4 ways. Without obligation, have the King Representative get in touch with me to arrange for a DETONITE demonstration right at our quarry.

Name_____

Title_____

Company_____

Address_____

or phone us collect

KING DETONITE

PATENTED SURFACE-SENSITIZED EXPLOSIVE

THE KING POWDER CO., INC.
CINCINNATI 1, OHIO
Since 1878—Our 76th year

CONSISTENT PERFORMANCE

. . . from any product requires top performance from all its parts. Years of know-how and engineering have gone into the manufacture of Hendrix Dragline Buckets. High quality materials and expert workmanship assure consistent performance day in and day out . . . job after job!

A TYPE AND SIZE FOR EVERY DIGGING PURPOSE

3/8 to 40 Cubic Yards

Hendrix Buckets available without perforations on special order.

HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA

Construction Equipment Co., 457 Windsor Ave., Wilson, Conn., has been named distributor by Worthington Corp., Harrison, N. J.

The White Motor Co., Autocar Div., Exton, Pa., have closed their Ardmore plant. Administration, manufacture, and distribution of Autocar Trucks including functions of The Autocar Sales and Service Co., have been moved to the new plant in Exton.

Autocar parts and service are now located at 34th St. and Indiana Ave., Philadelphia, Pa.

Russell T. Drennan has been named general sales manager of the Kaiser Chemicals Division of Kaiser Aluminum & Chemical Corp., Oakland, Calif. He will be headquartered at the home office.

John Minshall has been assigned as eastern regional sales manager for the Chemical Division in Akron, Ohio. He was formerly a product specialist there.

The Cleaver-Brooks Co., Milwaukee, Wis., has appointed the Harold R. White Co., 3600-4th St., Arundel Federal Bldg., Baltimore, Md., as a manufacturer's representative.

Appointment of Les Jensen as Eastern Division sales engineer has been announced by Phil Hill, vice-president and sales manager of Hyster Company, Portland, Ore.

He has been with the company for the last seven years in the engineering department and most recently was assistant to the supervisor of industrial truck design. As eastern sales engineer, Mr. Jensen will work out of the Danville, Ill., factory.

Thomas B. Preston, sales engineer with the Mechanical Goods Division, United States Rubber Co., New York, N. Y., has been transferred to Los Angeles, Calif., where he will take charge of grinding wheels sales for the Pacific Coast. He will make his new headquarters in the company's Los Angeles branch at Soto and East 46th Streets.

International Paper Company, New York, N. Y., has opened a new branch sales office in Cincinnati, Ohio, located in the Dixie Terminal Bldg., 49 E. 4th St. It will house representatives of three of the company's principal sales and converting divisions, the Southern Kraft Paper and Bag Division, the Bagpak Division, and the Single Service Division.

Blaw-Know Company, Pittsburgh, Pa., has announced the appointment of John Pendergast as domestic sales manager of its Foote Construction Equipment Division, located at Nunda, N. Y.

Louisiana Machinery Co., Inc., Ninth and Louisville Streets, Monroe, La., now offers sales and service for Bucyrus-Erie excavators and cranes in northern Louisiana. Branch offices are located on New Minden Road in Shreveport, and on McArthur at Masonic Drive in Alexandria.

Insley Manufacturing Corporation, Indianapolis, Ind., manufacturer of excavators, cranes, and concrete-handling equipment, announces the following changes in the officers of the corporation: William B. Elliott, formerly president, is now chairman of the board; James R. Elliott, formerly executive vice-president has been elected president; and William T. Elliott has been named executive vice-president.

Ludlow-Saylor Wire Cloth Company, St. Louis, Mo., manufacturers of Super-Loy abrasion-resistant woven-wire screens and wire cloth vibrating screen sections, have moved their Chicago office to 5807 West Diversey Avenue.

Bay City Shovels, Inc., Bay City, Mich., announces election of Donald E. Hawkins to the office of president, succeeding Morgan Ramsay, who has retired. Mr. Ramsay will continue on the board of directors and serve in an official advisory capacity.

The new president joined the company in 1928 and was named to the board of directors in 1943. He was made secretary and treasurer in 1947.

J. E. Cornell, Jr., and W. A. Sheets, 38 S. Dearborn St., Chicago, Ill., are now representing Hammond Bag and Paper Co., Wellsburg, W. Va., in the Michigan territory.

L. B. Harmon, a veteran of 24 years experience in the traffic and transportation fields, has been appointed assistant general traffic manager of Kaiser Aluminum & Chemical Corp. He will work directly with Angus V. McLeod, manager of traffic, at the corporation's Oakland, Calif., headquarters.

Mr. Harmon comes to Kaiser Aluminum from Montgomery Ward & Co., Chicago, Ill., where he has served as retail traffic manager.

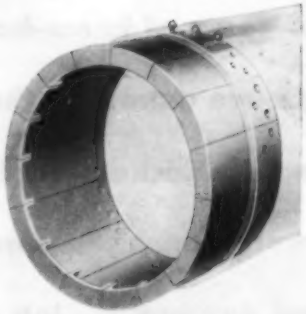
PYRASTEEL

Long-Lived KILN ENDS for CEMENT PLANTS

Several PYRASTEEL Kiln End installations have given 14 years of service in Texas cement plants. Other similar installations have lasted over 12 years. Repeat orders from the above projects were filled four or five years ago, and are still operating.

Such records are typical of PYRASTEEL units . . . that's why many cement producers equip both the feed and discharge ends of their kilns with PYRASTEEL Segmental Kiln Ends.

Over three-quarters of the annual cement output is produced in plants using either or both of our alloys, PYRASTEEL and EVANSTEEL.



PYRASTEEL KILN END, Discharge end

Unit Segments are easy to install or replace

Write for PYRASTEEL Bulletin

CHICAGO STEEL FOUNDRY CO.
Kedzie Avenue and 37th Street • Chicago 32, Illinois
Makers of Alloy Steel for Over 45 Years

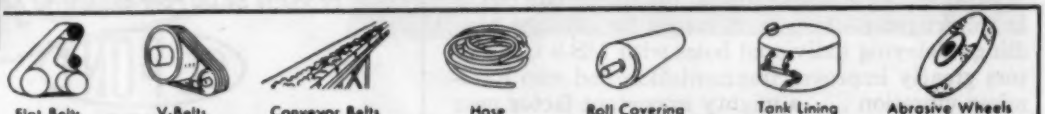
R/M CONVEYOR BELTS

If conveyor belts are your problem, turn to Raybestos-Manhattan. There are R/M Conveyor Belts with extra cushion for heavy shock loading. R/M Conveyor Belts for mining, quarrying, or bulk materials are unequalled for natural troughing, flexibility and long life. The latest exclusive development of R/M engineers is the "XDC" cover which protects heavy duty conveyor belts against wear, abrasion, cuts and tears to a degree never before attained. Hot material, high tension, long lift, oil or non-spark conditions . . . all are met with special R/M Conveyor Belt designs. Equally good engineering goes into R/M Belts for light duty . . . packages, parts, cases or wood chips. For every use R/M Conveyor Belts give you More Use per Dollar. Consult an R/M representative. Ask him also about R/M Hose, Transmission, V-Belts and other industrial rubber products.

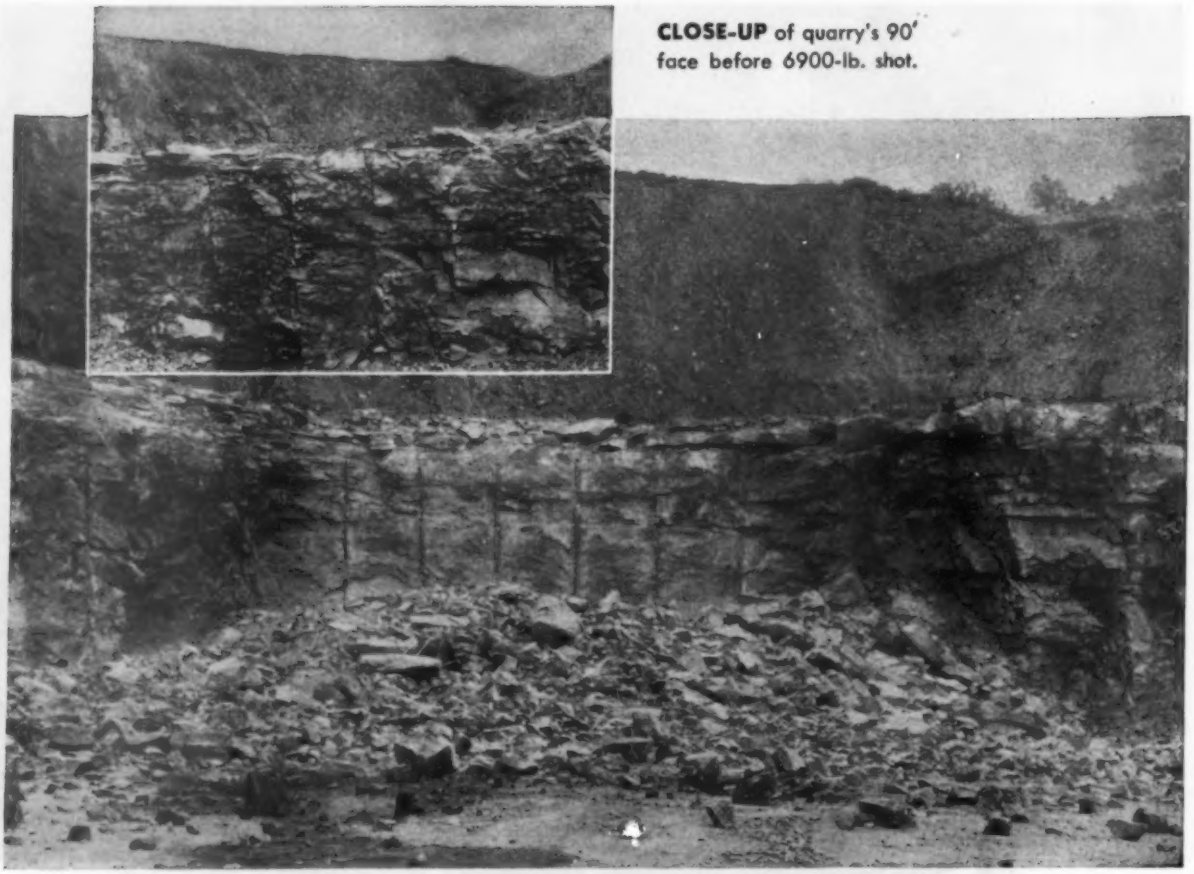
RM

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.



Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings
Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Bowling Balls RM-417



CLOSE-UP of quarry's 90' face before 6900-lb. shot.

BLAST produced over 20,000 tons of well-broken road stone.

EASTERN QUARRY REPORTS:

Safety and good breakage go hand in hand with Du Pont blasting "team"

Plenty of road stone, and safety in producing it point up blasting operations at the Latrobe Construction Co.'s Long Bridge, Pa., quarry. All shooting here is handled with a Du Pont "team" of "Nitramex"® #2 and MS-9 Connectors. According to Bruno Ferrari, president, this blasting combination gives Latrobe the effective breakage required, while providing the ultimate in safety.

Here's why: "Nitramex" #2 offers all the shooting power you need *plus* safety features. Shock, friction and fire cannot detonate it—*only* a "Nitramon"® Primer, also relatively insensitive, will. And because "Nitramex" #2 is non-headache-producing and comes in watertight containers, it makes for efficient handling. Delaying individual holes with MS-9 Connectors greatly improves fragmentation and also minimizes vibration . . . a mighty important factor near built-up areas.

Scores of quarries using this, or other Du Pont blasting "teams" have reported consistently good fragmentation and safer operations. Have you tried one of these dependable combinations? If not, contact the Du Pont Explosives representative in your area for complete details. E. I. du Pont de Nemours & Co. (Inc.), Explosives Dept., Wilmington 98, Delaware.

DU PONT
BLASTING AGENTS
Products of Du Pont Explosives Research

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

Dempster-Diggster bucket GETS A FULL LOAD WITH EVERY STROKE!

The hydraulic crowd and hoist operation of the new Dempster-Diggster GRD-101 gives you big shovel advantages in front end loading and excavation work. As shown in the at-work photos at right, here's what happens: Dempster-Diggster moves into material with shovel lowered against front of frame. No wheel traction is used to get excavation power. The hydraulic crowd and hoist moves bucket out and up following contour of material—getting a full bucket with every stroke . . . reducing loading time and idle truck time, thus getting the job done faster!

When you put your Dempster-Diggster into operation, one of the first things you will find is that your entire operation must be geared to a faster pace. This means greater efficiency of equipment and manpower—more profit to you!

Write us asking for Folder No. 3116 giving you complete information on the features of the Dempster-Diggster, including TRUCK-SPEED MOBILITY TO AND FROM JOBS . . . AUTOMATIC BUCKET TRIP . . . MAXIMUM DUMPING AND DIGGING HEIGHT . . . MINIMUM TURNING RADIUS . . . THE SHOVEL WITH TORQUE CONVERTER . . . HYDRAULIC STEERING, etc. Manufactured by Dempster Brothers, Inc.

In photo below camera catches Dempster-Diggster ready to back off and move up to a truck for loading.

DEMPSTER DIGGSTER

DEMPSTER BROTHERS 294 N. KNOX, KNOXVILLE 17, TENNESSEE

You're Sure with Merrick

FOR Positive Controlled Feed by Weight of Sand Gravel, Lime Clinker, Gypsum or other materials to Process—

Use the Feedoweight

Merrick Scale Mfg. Co.
Passaic, New Jersey

IT COSTS NO MORE — TO USE THE BEST

REPLACE WITH

"Indian Brand"

MANGANESE STEEL
Shovel Dippers
Dipper Teeth
Shovel Treads

Crusher Jaw Plates
Mantles—Concaves
Bowl Liners
Roll Shells

Pulverizer Hammers
Grate Bars—Breaker Plates

Ball Mill Liners
Screen Plates

The Frog, Switch & Mfg. Co. CARLISLE, PA
ESTABLISHED 1881

Hyster Co., Portland, Oreg., has announced the promotion of Wilton G. Smith from the sales promotion department, where he has been coordinator of the firms used lift truck program, to the position of manager of the New York export office at 90 West Street. He will take the place of A. E. Betts, who is retiring from the firm after 25 years of service. Mr. Smith has been with the company for eight years as a retail salesman, district sales manager, and New York and Washington, D. C., representative.

Wilton G. Smith

Hugh O. Geeslin, Jr.

Hugh O. Geeslin Jr. of Birmingham, Ala., has been named as sales engineer for Baughman Manufacturing Company, Jerseyville, Ill., manufacturers of conveying equipment, bulk transport bodies, and bulk feed bodies. He was formerly with the Bostitch Corporation.

Highway Machinery & Supply Company, Inc., 1724 Altamont Ave., Richmond, Va., has been appointed to sell and service the line of forklift trucks, straddle carriers, and other materials-handling equipment manufactured by the Industrial Truck Division of the Clark Equipment Company, Battle Creek, Mich.

Clark has also announced the appointment of George Industrial Equipment Company, Inc., 11th Avenue at 50th Street, New York, N. Y., as sole distributor in the Greater New York area.

The White Motor Company, Exton, Pa., has just completed a program which gives its Autocar Division more that 150 sales, service, and parts outlets throughout the country, compared with only 56 outlets a year ago, before White Motor acquired substantially all the assets of the Autocar Co. Under the integration program, day and night service becomes available for the first time in some areas.

The Lincoln Electric Co. of Cleveland, Ohio, has announced the assignment of four additional application engineers to field districts.

Robert Clipsham is located in Kansas City, Mo.; Gordon Collier has been assigned to the Philadelphia, Pa., district; John Gonzales is in the Columbus, Ohio, district office; and Donald Hastings has been assigned to Lincoln's West Coast Emeryville, Calif., district.

David L. Springston has been appointed to the post of sales engineer for the WEMCO Division of Western Machinery Co., San Francisco, Calif., with headquarters at Columbus, Ohio.

In his new association with WEMCO, he will be in charge of that territory covering Ohio, West Virginia, western Virginia, and eastern Kentucky. His function will be the sales and servicing of processing equipment.

Chas. R. Carey, 247 Conner Avenue, Knoxville, Tenn., has been appointed exclusive manufacturer's representative for Cleaver-Brooks Co., Milwaukee, Wis.

Also announced is the appointment of Lefler Wyomont Supply Co., Stapleton Bldg., Billings, Mont., as exclusive manufacturer's representative for the state of Montana, for Lemhi County, Idaho, and for northern Wyoming.

TRADE MARK

Clip-A-Rip

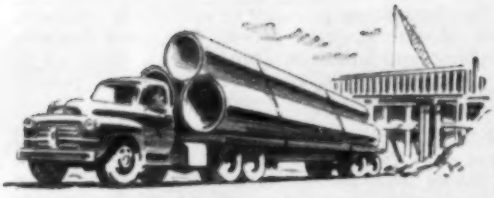
BELT LACING

Driven into the belt by a hammer, specially designed teeth pull ripped sections together and hold tightly in place pieces inserted to replace gouged or burned sections. New Clip-A-Rip clips in two sizes: for belts 1/2-5/8-in. and 5/8-7/8-in. thick.

THREE POINT BELT LACING CO.
Peace Dale, R. I.

EATON 2-SPEED AXLES

Cut Costs for Truckers Six Ways



More than Two Million
Eaton Axles in Trucks Today!
Ask your truck dealer
for complete information.

1. Quicker full load trips, on or off the highway.
2. Wider range of vehicle usefulness.
3. Reduced wear on engine and power transmitting parts; less maintenance.
4. Maximum "earning" time on the job; less "expense" time in the shop.
5. Fewer stops for gas and oil; lower operating cost.
6. Extra thousands of low cost, trouble-free miles in the life of the truck.

EATON — AXLE DIVISION — MANUFACTURING COMPANY
CLEVELAND, OHIO

PRODUCTS: Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater-Defroster Units • Snap Rings Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

I wouldn't think of ordering screens from anyone but STANDARD!

The man from Mars has learned what most earthmen with pit and quarry interests have known for a long time – Standard Stamping is the best source in the Universe for perforated metal Hammermill Screens, Vibrating and Shaking Screens, and Scalping Screens. But he doesn't need to fuel-up his flying saucer, because he can get immediate delivery from Standard by phoning, wiring, or mailing an order. And if he wants information about sizes, open areas, gauges, and such, he'll find it all in Standard's new free catalog, just as *you* can if you mail this coupon.

mail the coupon today for your free copy of Standard's catalog!

STANDARD STAMPING

AND PERFORATING COMPANY

3131 W. 49th Place Chicago 32, Illinois DEPT. P

GENTLEMEN: Please send me your new catalog showing Standard's complete line of screens and perforated metals for pit and quarry use.

Name

Company

Address

City Zone State

CUTS CRUSHING COSTS *In half*

WILLIAMS
HEAVY DUTY Hammer Mills

A single Williams Hammer Mill reduces power shovel loaded stone to any specified size between 2" and 8 mesh *IN ONE OPERATION* at output rates up to 550 tons per hour! . . . *saves up to 75% of capital investment* by eliminating primary or secondary crushers, conveyors, elevators, extra drives, expensive foundations, housing and other equipment . . . *saves up to 50% on production cost,* cuts labor, upkeep, power, parts replacement, other profit-eaters!

No crusher built will stand up better under rugged continuous service. Extra heavy manganese steel breaker plates and liners — larger diameter shafts — other massive wear-resistant parts and reinforcements —all promise much greater return on every dollar invested in a Williams.

Send For Fact-Filled Catalog

ASK FOR DETAILS ON OTHER WILLIAMS EQUIPMENT

ROLLER, IMPACT and DRYER MILLS for fine and micron size grinding... HELIX-SEAL HAMMER MILLS for grinding dusty, wet and sticky materials ... AIR SEPARATORS for high output of precision fine grinding ... VIBRATING SCREENS, open or closed, for any size job ... COMPLETE "PACKAGED" PLANTS ready to install in existing buildings.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.

802 ST. LOUIS AVENUE ST. LOUIS 6, MO.

WILLIAMS

CRUSHERS GRINDERS SHREDDERS

OLDEST AND LARGEST MANUFACTURER OF HAMMER MILLS IN THE WORLD

SEPTEMBER 1954

THE CONCRETE MANUFACTURER

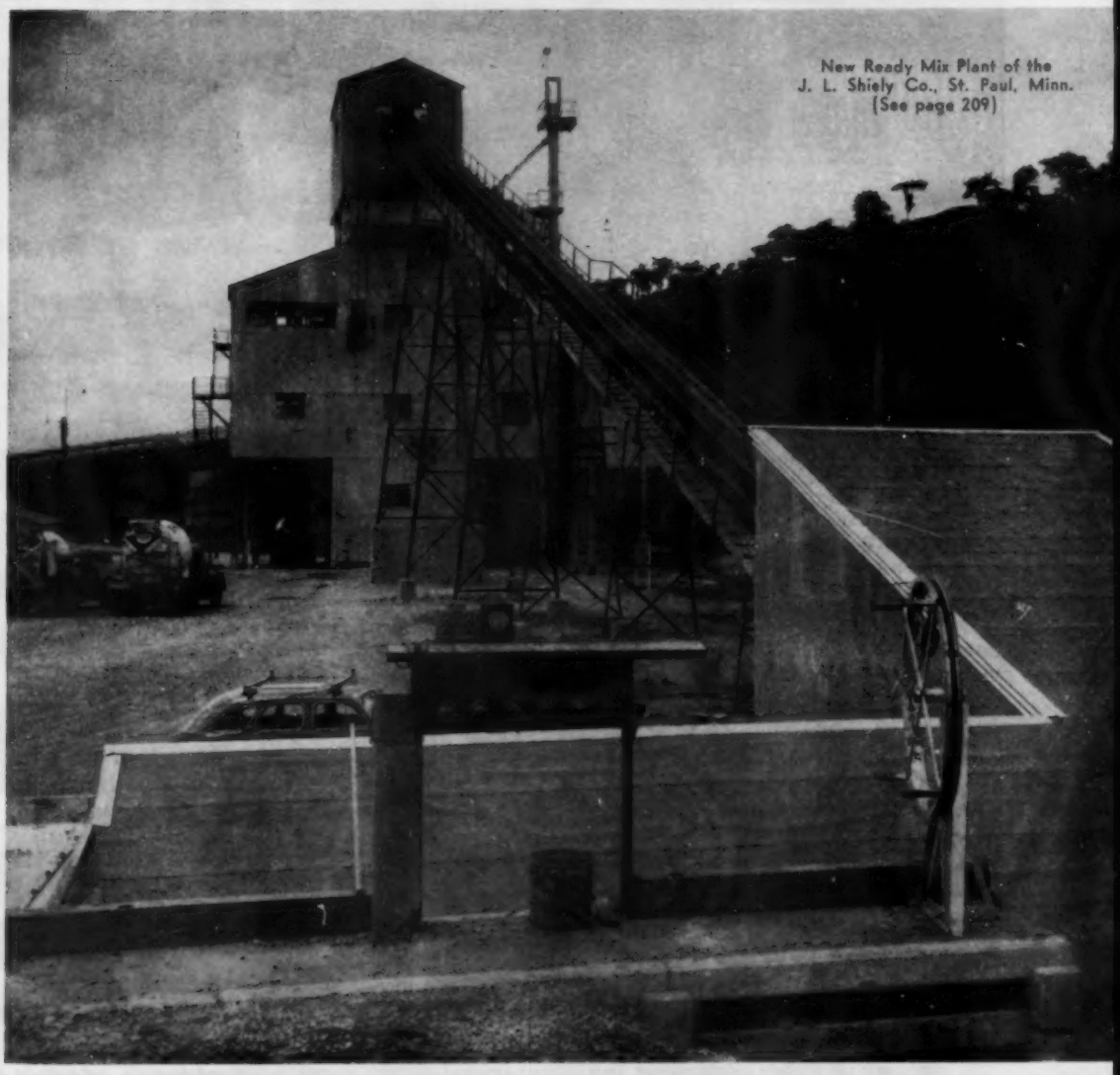
A SPECIAL SECTION OF PIT AND QUARRY

Edited for Producers of

Concrete Building Units

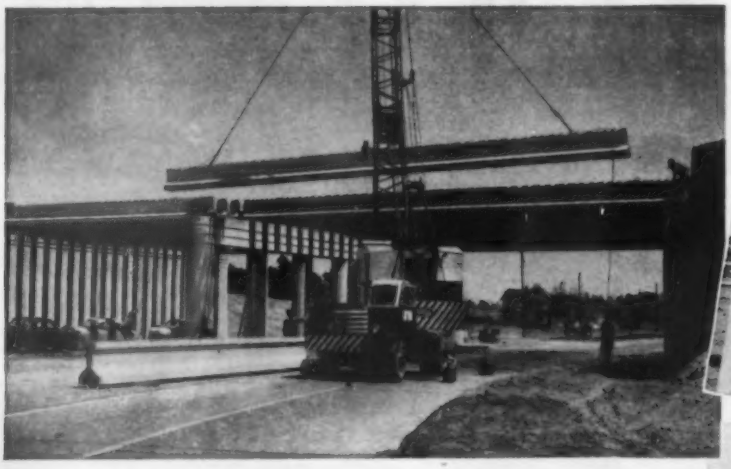
Pipe

Ready-Mix Concrete



New Ready Mix Plant of the J. L. Shiely Co., St. Paul, Minn. (See page 209)

Prefabrication COMES OF AGE!



218 Precast, Prestressed Deck Girders, with Spans up to 63', Factory-made for Garden State Parkway Bridges

● Precasting continues its rapid spread, as today's building costs intensify the quest for sound economies. The range of concrete prefabrication is greatly widened by prestressing, which makes possible lighter members and longer spans, for buildings and bridges, with substantial savings in concrete and steel. Prestressing is really pre-testing, because a member is subjected to greater loads in fabrication than it takes in the field.

Factory-made, prestressed deck girders, 218 in number, up to 63 ft. in length, for eight bridges on New Jersey's Garden State Parkway, highlight this trend. Designed by GANNETT FLEMING CORDDRY & CARPENTER, INC., Harrisburg, Pa. and manufactured by FORMIGLI ARCHITECTURAL STONE CO., Williamstown Junction, N. J., every member is field practical, for fast erection with minimum supervision.

Cost in place invites comparison . . . inherent resistance to fire, weather, rust and rot, with no painting and little or no maintenance, mean further economies . . . marking the coming of age of concrete prefabrication.

For school and residential, commercial and industrial construction, factory-made concrete columns, spandrel beams, girders, roof slabs, provide fire-safety, structural stability and pleasing appearance of concrete, at marked cost advantage.

ASSEMBLY-LINE METHODS speed production in 320'-long pretensioning bench at Formigli's Williamstown Jct., N. J. plant, where 5 bridge deck girders were cast at a time and steam-cured. Facia members were post-tensioned at Formigli's Berlin, N. J. plant. 'INCOR'* 24-HOUR CEMENT produced 4000 psi stripping strength in 18 hours, setting tempo of operation, assuring maximum output at minimum production cost . . . with high ultimate strength and durability, hallmarks of America's FIRST high early strength portland cement. *Reg. U.S. Pat. Off.

LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N. Y. • BETHLEHEM, PA. BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON INDIANAPOLIS • KANSAS CITY, MO. • NEW ORLEANS • NEW YORK NORFOLK • RICHMOND • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 18 MODERN MILLS, 136,000,000 SACKS ANNUAL CAPACITY

The CONCRETE MANUFACTURER

September 1954

Fringe Benefit Costs

NEARLY two years ago the Chamber of Commerce of the United States threw the first clear light on a subject which had been causing increasing concern to business and government — that of fringe benefit costs. These costs include employer payments for social security, pensions, vacations and the like. A survey of 736 selected companies showed that such costs in 1951 jumped to an all-time high of $644 annually per employee. For 138 of the companies which had taken part in previous surveys in 1947 and 1949, these payments had jumped 66 percent in four years—from $440 to $681 per employee. The costs to the 736 companies averaged 18.7 percent of their entire payrolls, or 31.5c per payroll hour. The national costs of these fringe benefits was estimated at nearly $25 billion annually.

The Chamber now presents the final reports of another such survey, which was based on a total of 940 companies. The survey reveals that fringe benefit costs amounted to $720 per employee during 1953, $76 or 12 percent over two years ago. More than 97 percent of the companies reported payments for employee insurance programs, with payments averaging 1.8 percent of payroll. Payments for pensions were reported by 81 percent, and averaged 4.7 percent of payroll. Fringe payments among the reporting companies varied from less than 5 percent to more than 55 percent of payroll. The average payment was 19.2 percent, or 34.6c per payroll hour.

It is significant to note that the steady increase in the average amounts of fringe benefits paid has been accompanied by a reduction in the variations in payments among different industries. This obviously indicates a growing penetration and spreading of the practice which will eventually affect all industry nearly equally. Average payments in 1953 ranged from 14.3 percent for pulp, paper, lumber and furniture to 28.7 percent for banks, finance and trust companies. In most industries fringe payments were somewhat higher than average in the largest companies and lower than average in the smallest companies but this slight difference is also decreasing.

It was again pointed out that, although steadily growing in importance, fringe payments have been neglected in both government and private wage statistics. The figures on wages being used, therefore, do not represent the true cost of doing business or the true level of workers' incomes. It was reported in 1951 that the U. S. Treasury was studying fringe benefits as a possible new source of income tax. It is now stated that the Bureau of Labor Statistics, in cooperation with the National Bureau of Economic Research, is conducting a pilot study of supplementary employee remuneration in manufacturing. It is to be hoped that this augurs the inclusion of fringe benefit data in the Bureau's regular series of wage statistics, as worker income and labor costs of doing business are no longer accurately measured by weekly and hourly wages.

Walter E. Trauffer

Build Better with VIBRAPAC Block

for magnificent INTERIORS, too!

EVERLASTINGLY *beautiful*

Vibrapac Block, used extensively for *exteriors* of buildings, is equally adaptable to *interiors*. No other building material commands greater respect. In homes, and other structures, large or small, you know the colorful beauty, unique texture and ruggedness of Vibrapac Block is everlasting. Here is modern, practical, permanent construction that reflects good judgment and wins prestige.

PLUS LOW COST AND OTHER ADVANTAGES

Obviously, Vibrapac Block are fire-safe and storm-safe, vermin and rodent proof. They insulate effectively against heat and cold . . . have great acoustical and soundproofing qualities . . . assure maximum economy in both first cost and maintenance cost.

VIBRAPAC PLANTS

This is one of a series of advertisements prepared by Besser and appearing currently in the Architectural and Building publications. We hope these advertisements will help Vibrapac Block Plants in developing new markets for Concrete Masonry, the modern building material.

Vibrapac Block are produced only on BESSER Automatic High-Production Block Machines. Illustrated here is the new 2-core block with trussed center web . . . one of the many types and sizes made on a Vibrapac using only ONE set of Plain Pallets. Write for literature to Besser Manufacturing Company, Box 131, Alpena, Mich., U. S. A.

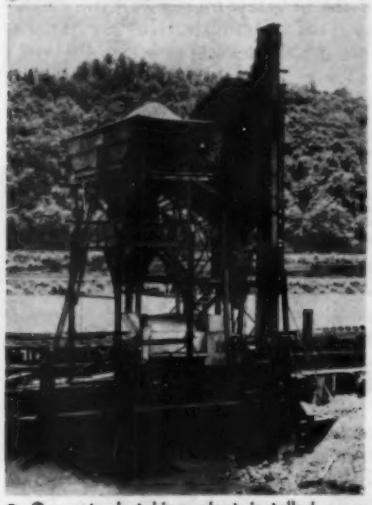
BESSER 50th Anniversary 1904-1954

...a Half Century of Concrete Masonry Progress!

NEWS OF THE CONCRETE INDUSTRIES

Floating Batch Plant At Bridge Building Site Solves Dual Problem

To solve a difficult space and traffic problem, the John F. Casey Co., Pittsburgh contractors for the new Point Bridge over the Monongahela River, erected a concrete batching plant on a barge and floated it to the work site.



● Concrete batching plant installed on a barge by John F. Casey Co., Pittsburgh contractors for Point Bridge piers, with a capacity of 100 tons of aggregates and 400 bbl. of cement. The new method licks space and traffic problems.

As a part of the Pittsburgh redevelopment program, the Casey Company is constructing nine river piers, each requiring 2,000 cu. yd. of concrete, and a 500-ft. river retaining wall. The double-deck bridge will connect with new twin tubes under Mt. Washington, providing access to the South Hills district from the point of Pittsburgh's "Golden Triangle". It will form an integral link in the Penn-Lincoln Parkway Project, a part of a major east-west throughway.

The concrete plant will have a capacity of 100 tons of aggregates and 400 bbl. of cement and will supply 60 cu. yd. of concrete an hour. Materials will be delivered by river barge to the floating plant; proximity to the work will be maintained as the job progresses by moving the barge plant out into the river. Blaw-Knox truck mixers are used for transport of the concrete from the batcher to forms, placing being accomplished with three 1-cu. yd. concrete buckets handled by crane.

Coming Events

October 18-22, 1954 — Chicago. 42nd National Safety Congress and Exposition. Conrad Hilton Hotel.

October 25-27, 1954 — St. Louis. Fourth annual short course of instruction, American Concrete Pipe Association. Statler Hotel.

October 28-29, 1954—Los Angeles. Regional meeting, American Concrete Institute. Statler Hotel.

October 28-November 2, 1954. Annual meeting, North Carolina Concrete Masonry Association. Aboard the Swedish liner *Stockholm* to Bermuda.

January 9-13, 1955—Miami. 25th annual convention, National Ready Mixed Concrete Association.

January 17-19, 1955—Niagara Falls, Ont. Annual convention, National Concrete Products Association (Canadian). Sheraton-Brock Hotel.

January 24-27, 1955 — Cleveland. 35th annual convention, National Concrete Masonry Association. Cleveland Public Auditorium.

February 21-24, 1955—Milwaukee. 51st annual convention, American Concrete Institute. Hotel Schroeder.

Milwaukee to Be Host City To 51st A.C.I. Convention

The American Concrete Institute will hold its 51st annual convention at the Hotel Schroeder, Milwaukee, Wis., from February 21 to 24, 1955.

Technical committee meetings are scheduled for the first day, and the remaining three days will feature general sessions and tours to construction sites and heavy equipment manufacturers' plants. The convention program will include sessions on lightweight aggregate concrete, concrete pavements, latest developments in equipment, concrete construction and design, and the annual research session.

Robert A. Burmeister, materials engineer, City of Milwaukee Testing Laboratory, is general chairman.

The Durolite Company of Bradford, Pa., has erected a new ready-mixed concrete plant at Port Allegheny, Pa. R. K. Stover will be the new manager.

United Concrete Pipe Gets $3,896,146 Contract For Aqueduct in Utah

United Concrete Pipe Corporation has been awarded a $3,896,146 contract for construction of the Davis Aqueduct for the U. S. Bureau of Reclamation's Weber Basin Project in north central Utah, between Ogden and Salt Lake City. The contract calls for approximately 18 miles of pressure pipe in diameters ranging from 48 in. to 84 in. The line will begin at the Weber Aqueduct at the mouth of Weber Canyon.

The reinforced concrete pipe for the aqueduct will be manufactured in United's long established plant at Pleasant Grove, Utah, which also manufactured pipe for the Salt Lake City Aqueduct. Construction began on August 12, and is expected to be completed in May, 1957. G. F. (Roy) Chinnici is general superintendent of the job for U.C.P.

S. Carl Smithwick Selected As N.C.M.A. President for '55

S. Carl Smithwick, president of Smithwick Concrete Products Company, Portland and Eugene, Ore., was elected by the board of directors of the National Concrete Masonry Association to head that organization next year. The action took place at the mid-year meeting of the board at Asheville, N. C.

Mr. Smithwick will take office in January, 1955, along with the rest of the officers selected at the meeting. Prior to organizing his present company, he had served for 14 years as district engineer of the Portland Cement Association, with his headquarters in Spokane, Wash. He has just concluded two years as president of the Expanded Shale Institute, Washington, D. C.

Sioux Falls Products Firm To Install Automatic System

The plant of Josten Concrete Products Company, Sioux Falls, S. D., has undergone complete modernization of equipment and processes, with the installation of fully automatic motors, tractors, and hydraulic lifts throughout the plant. Capacity has been increased to 6,000 units per day.

It is expected that the new operations will employ 22 persons. The 38-year-old firm, founded by J. M. Josten, has been a family enterprise throughout its existence.

THOROSEAL *Restored* this Filtration Plant

BEFORE

Example of complete break-down of masonry, due to penetration of water into body of concrete and action of frost in damp masonry.

It is amazing how THORO System products will correct a condition, such as shown in photograph. Concrete was sandblasted to remove all disintegrated material to sound concrete surface and reinforcing rods. Patching was done with THORITE Patching Mortar, bringing blistered areas to true and even lines, followed by two applications of WHITE THOROSEAL for protection.

AFTER

At minimum cost, almost ⅓ the cost of other methods, concrete restoration, patching and surface protection was completed with THORO System products on Filtration Plant in Keyser, West Virginia. Contractor: Standard Construction & Waterproofing Company, of Cumberland, Maryland.

Get our pictorially-described literature, "HOW TO DO IT" and specification guide.

STANDARD DRY WALL PRODUCTS INC.
NEW EAGLE, PENNSYLVANIA

President Signs Measure Enacting Controversial Bill To Alter Housing Code

After approval by the Senate the new Housing Act of 1954 went to the White House and was signed by President Eisenhower. Described as "unquestionably the most extensive rewriting of housing legislation in the last 20 years", this bill encountered nearly every legislative road block possible. Full utilization of the new law must await the clearance of administrative regulations through the several agencies affected.

In spite of the charges made against the Federal Housing Authority, Congress gave it broadened authority, reaffirmed the policy that it should serve even wider areas of the low- and middle-income market, and directed that down payments be lowered and mortgage terms extended. In view of these facts, Congress virtually re-endorsed the FHA-insured mortgage as an instrument of national housing policy.

Some highlights of the new law are as follows:

One-to-four family mortgage amounts were increased to 95 percent of the first $9,000 of value plus 75 percent of the excess up to the maximum mortgage amount of $20,000; discretionary authority was given the President to raise this to 95 percent of the first $10,000 if economic conditions require.

Public housing was restricted to 35,000 units, with further limitations on eligible occupancy.

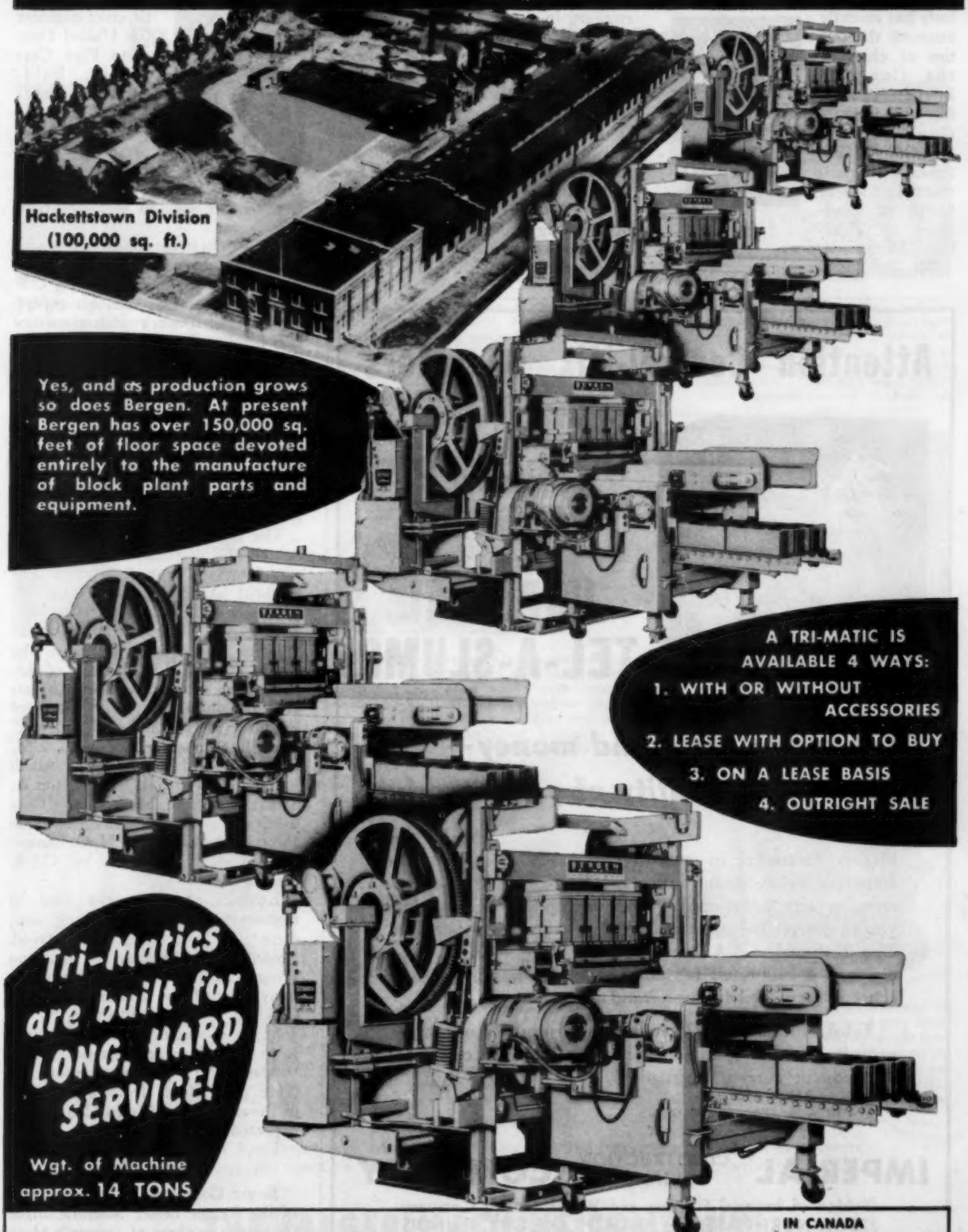
The framework of a sound new secondary mortgage market system was established by reconstituting the Federal National Mortgage Association.

The Harry T. Campbell Sons Corporation, Towson, Md., recently purchased the property, plant, and equipment of the Clark Ready-Mixed Concrete Company of Baltimore, Md., and will operate the business as a wholly-owned subsidiary under the name of Clark Concrete, Inc.

About Our Cover Picture

● The new ready-mix plant of the J. L. Shiely Co. (Guaranteed Concrete Co.), St. Paul, Minn., is shown on our cover this month. The plant, which was designed by the Butler Bin Company, features automatic batching facilities and a 6-cu. yd. central mixer. An innovation of the plant is the location of the dispatcher's office in the plant proper, on the same floor as the batching facilities. Note the panel lights and cable control in the foreground, used in feeding the 6-compartment aggregates bin. This plant is described in pages 209-211 of this issue.

BERGEN TRI-MATIC PRODUCTION ROLLS ON



Yes, and as production grows so does Bergen. At present Bergen has over 150,000 sq. feet of floor space devoted entirely to the manufacture of block plant parts and equipment.

A TRI-MATIC IS AVAILABLE 4 WAYS:

1. WITH OR WITHOUT ACCESSORIES
2. LEASE WITH OPTION TO BUY
3. ON A LEASE BASIS
4. OUTRIGHT SALE

Tri-Matics are built for LONG, HARD SERVICE!

Wgt. of Machine approx. 14 TONS

BERGEN MACHINE & TOOL CO., INC., NUTLEY, N. J.

IN CANADA
Construction Equipment Co., Ltd.
Toronto
Halifax, Montreal, London, Edmonton

New Corps of Engineers Post Announced for J. M. Polatty

James M. Polatty has recently assumed the duties as chief of the Concrete Branch of the Concrete Division, Jackson Sub-Office, Waterways Experiment Station, Corps of Engineers at Vicksburg, Mississippi.

J. M. Polatty

Mr. Polatty has been engaged in testing and construction work since 1937, being with the Corps of Engineers since 1941. He has served as engineer-in-charge of the Mobile District Corps of Engineers Testing Laboratory; engineer of the Santee-Cooper Project near Charleston, S. C.; and concrete engineer at Allatoona Dam at Cartersville, Ga. At the time of his transfer to the Waterways Experiment Station, he was assistant resident engineer at Jim Woodruff Dam near Chattahoochee, Fla. He is currently a member of the American Concrete Institute and the American Society of Civil Engineers.

Attention Central-Mix Operators

Introducing the new

IMPERIAL TEL-A-SLUMP

To save you time and money— improve the quality of your product

Highly successful in over five years of operation, the Imperial Tel-A-Slump indicates the slump of the concrete at any point during the mixing process—enables you to correct for moisture variation with no loss of time. The Imperial Tel-A-Slump has an eight inch diameter dial and is calibrated for rated capacity of the mixer. A chart is furnished for non-standard loads.

Tel-A-Slump is available in three models; indicating, recording and a special model for use under conditions of frequent current fluctuations.

Write for free literature.

IMPERIAL CONSTRUCTION EQUIPMENT COMPANY

Division of Imperial Flooring and Waterproofing Company
230 W. NORTH AVENUE NORTHLAKE CITY, ILLINOIS

TRUCK MIXERS • BLOCK UNLOADERS • PLANT CONTROLS

Curtis New Vice-President Of United Concrete Pipe Co.

G. L. Curtis

George L. Curtis, chief engineer for United Concrete Pipe Corporation, Baldwin Park, Calif., has been appointed vice-president, engineering, according to an announcement released by Lloyd Earl, president.

Mr. Curtis became associated with the firm in 1946 after having served in the Civil Engineering Corps, U.S. Navy. Prior to the war, his experience included work with construction firms and engineering organizations in New York and New Jersey. He is a graduate of Newark (N.J.) College of Engineering, a member of the American Society of Civil Engineering, and a registered civil engineer in California and New York.

Fourth A.C.P.A. Short Course At St. Louis, October 25-27

The Fourth Annual Short Course School of Instruction of the American Concrete Pipe Association will be held at the Statler Hotel, St. Louis, Missouri on October 25-27, 1954. Subjects and authors include: "Placing and Curing Concrete" by L. H. Tuthill, U. S. Bureau of Reclamation; "Live Loads on Underground Conduits" by U. S. Corps of Engineers; "Hydraulics of Culverts" by R. E. Schiller Jr., Texas A. & M. College; "Acid Resistant and Alkali Resistant Drain Tile" by Dalton G. Miller, Univ. of Minnesota; "Core Testing" by R. R. Litehiser, Ohio Dept. of Highways and H. C. Eames; and "Culvert Surveys" by C. E. Haager.

Exhibits of equipment used in manufacturing and handling concrete pipe will also be featured. Among the exhibitors are Erickson Power Lift Trucks, Inc., Viber Company, Silent Hoist & Crane Co., Inc., Calcium Chloride Institute, C. S. Johnson Company, and Hamilton Kent Manufacturing Company.

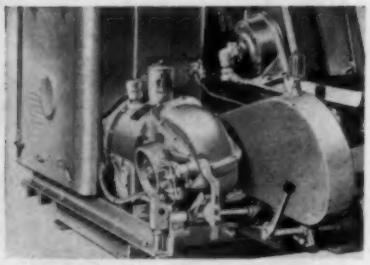
About 150 representatives of concrete pipe plants from all sections of the country and from Canada are expected.

Besser Company is the new name of the former Besser Manufacturing Company, makers of concrete block machinery and related equipment at Alpena, Mich., according to an announcement released by the firm.

9 reasons why Jaeger Truck Mixers put more "pay" into payloads

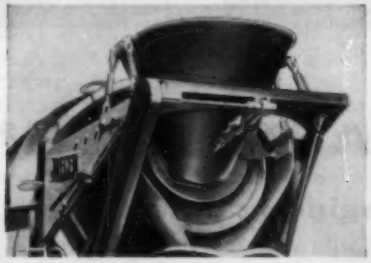
1. More payloads, less downtime. Side-by-side comparisons prove Jaegers produce more actual payloads — not only full legal payloads per trip, but more daily payloads with the same plant and payroll. Operating records also show fewer hours per week on routine maintenance, fewer days per year on major upkeep.

2. Compare Jaeger's exclusive "dual mix" drum. Produces uniformly higher strength concrete, gives fastest charging, mixing, discharging. Deeper, continuous spiral blades of special contour. *Built for 8 to 10 years' service*, with double 5/16" drum heads, 3/16" main cone and 10-gauge blades with exclusive bridge-truss feet.



3. Perfected "Super-Comatic" hydraulically-actuated transmission — a Jaeger exclusive — provides single-lever control of clutches and brake, shock-proof shifting, automatic brake in neutral, positive clutch engagement. Dual (front and rear) levers give driver complete control of drum for mixing and discharge, speed operation.

4. Compare Jaeger's open-end "Maxi-Loader". Faster, cleaner charging — 5 to 15 secs. per yd., depending on batcher and aggregates. Hopper has largest throat, deepest reach into drum. No cement blow-back. No spillage either, even on steep grades, quick starts. Deep-lipped discharge blades also produce faster, steadier discharge.



5. For maximum agitator payloads, compare Jaeger's sealed end loader with perfected grout-proof seal. Proven over 8 years. Takes fastest charge without blow-back and opens wide to discharge with one quick turn of a hand wheel. Built-in pressure system flushes seal with new lubricant whenever system is operated.

6. Faster, more uniform water distribution. High pressure water jet injects 60 gpm @ 65 psi to the mass of material *in the head of the drum*. Results in faster mixing, tempering, flushing. Jaeger 1½" pump and patented grout-proof and clog-proof jet insure unimpeded, high velocity flow at all times.

7. Compare Jaeger's 3-piece "to-the-spot" chute. Places concrete where customers want it. Chute head, plus 2 quick-coupling extensions, gives choice of 5', 8', 10' or 13' lengths. Chute head instantly swings to side for direct bucket discharge. No other truck mixer provides this flexible range of chute lengths.

8. Rugged, fast, dependable — both on and off the road. In a Jaeger "Mix-Plus" you can haul maximum payloads, charge, mix and discharge faster, and continue to enjoy these advantages through a life expectancy of 8 to 10 years, compared with the 4 to 5 years average life expectancy of cheaply-built mixers.

9. Optional choices of equipment of widest range enable you to meet your local condition, payload requirement, weight limitation and wet-mix or dry-batch operation with standard units readily mountable on standard makes of trucks. In all cases, Jaeger prices are based on furnishing a *complete* basic machine.

See for yourself how Jaeger truck mixers can cut your time and costs, speed your jobs. Your Jaeger distributor can give you complete facts on these and other Jaeger advantages. Or write for Catalog.

THE JAEGER MACHINE COMPANY

602 Dublin Avenue, Columbus 16, Ohio

LOADERS • AIR COMPRESSORS • PUMPS • MIXERS • PAVING MACHINES

CLARK's L.P.-GAS CARLOADER*

1. Greatly reduces engine maintenance:

Eliminates unburned carbon deposits and crankcase dilution. Eliminates fuel pump and complicated carburetor adjustments.

2. Elliminates obnoxious exhaust fumes:

L.P.-Gas provides almost perfect combustion, excellent for indoor operations.

3. Provides safe, efficient operation:

Vacuum ignition switch is interlocked with fuel line and manifold, impossible to spill fuel or load-up engine.

High compression head (8.5 to 1) gives maximum economy and power from high octane L.P. Gas.

Quickly demountable tank takes 3 minutes to change.

Stellite valves and seats prevent burning from high flame temperature of L.P. Gas.

Now you can have the advantages of liquified petroleum gas-powered (butane, propane) materials handling, with complete safety. For details, call your local Clark dealer, listed under "Trucks, Industrial" in the Yellow Pages. Or send the coupon for specifications.

*4000 lb. capacity, available with standard shift, Hydratork or Dynatork

Industrial Truck Division CLARK EQUIPMENT COMPANY
Battle Creek 90, Michigan ☐ Send details on LPG truck

CLARK EQUIPMENT

Name_____
Firm_____
Address_____
City_____ Zone____ State_____

Washington Products Men To Hold 26th Fall Meeting At Yakima, Sept. 24-25

The 26th annual fall meeting of the Concrete Products Association of Washington will be held in the Chinook Hotel, Yakima, Wash., on September 24 and 25, 1954. The tentative program includes a directors' meeting Friday evening, September 24, and a general business meeting Saturday morning, September 25, followed by separate coinciding block and pipe seminars.

Following lunch will be a combined industry promotion meeting. Saturday evening's activities will include a cocktail party and banquet. Reservation cards and further information will be forthcoming to all members.

New Owners Take Charge In R.M.C., Products Plants

Changes in company ownership and organization have been announced for companies in various parts of the country. Typical are the following:

Graystone Concrete Products Company, Seattle, Wash., has acquired the Chehalis (Wash.) Ready-Mixed Company.

Leasing of the Construction Service Company's ready-mix plant at Pratt, Kans., was announced by F. K. McCullough, who stated that the new business would be known as the McCullough Ready-Mix Construction Company.

Ownership of the Pocahontas Ready Mix Company, Clarion, Iowa, has passed from W. B. Linnan to Don C. Parr.

Texas Ready-Mixed Concrete Association, at a recent annual meeting held in Houston, elected the following officers for the coming year: J. E. Motheral, president; Tom C. Foley and Weaver Cunningham, vice-presidents; Tom L. Amis, W. A. Kelson, D. P. Wheat, Laurence Fuqua, Scott D. Clark, and Floyd Childs, directors.

• Correction

We regret that a statement made on page 275 of our July issue, concerning the number of batter blocks made in Schenectady, N. Y., prior to the expansion of Dagostino Building Blocks was incorrect. We stated that production had been " . . . some 75 units per day in a small plant which used handcasting methods." The Schenectady Cast Stone Company (the other firm involved) writes that it makes more than that number, and that it is *not* a small operation.

R/y Ready Mix

By Harry F. Thomson

Specifications Should Be Followed

A READY-MIX producer is obligated to comply with the specifications for concrete for each job he serves. This obligation implies that he understands fully the terms of the specification for each job and is equipped to comply. The terms may be a simple statement of volume proportions on a small order received by telephone, or the terms may be set out in detail in the written specifications for an important project. In the latter case the requirements should be reviewed carefully so there may be no misunderstanding as to required quality—and also in many cases, how that quality is to be obtained. In either of these extremes, or any of the innumerable sets of provisions which may lay between, the job specification should be considered as binding on the producer who accepts the obligation of compliance.

Ready-mix is commonly sold to conform with quality requirements which are specified by the purchaser. Specifications fall into the following three general classifications.

1. The purchaser states the proportions of cement, fine and coarse aggregates, and the maximum quantity of mixing water to produce a named slump or a described workability. Under this type of control the purchaser assumes major responsibility for quality, provided of course that the producer complies with the specified quantities, as he should do.

2. The purchaser specifies the materials and names the minimum cement content, together with maximum amount of water or the water-cement ratio. In this case the producer assumes considerable responsibility, such as the unnamed proportions of coarse and fine aggregates.

3. The purchaser specifies only the materials and the minimum strength required for a given range in slump. Under such a specification the producer assumes a heavy responsibility, but can utilize his experience and knowledge to furnish a uniform quality of concrete at lowest expense.

The first of these methods of specifying quality, i.e. by volume proportions, has been inherited from the days of shovel or wheelbarrow measurement of aggregates in job mixing, and is gradually passing from use for important structures. However, provisions for 1-2-4, 1-3-5, or other arbitrary proportions still appears in specifications for many small projects. Similar references to volume measurement also occur in much of the conversation regarding concrete. But with the growing availability and acceptance of ready-mix concrete, there has been a trend by designers toward providing in their general specifications for the quality of concrete under the other two methods mentioned above, i.e. by minimum cement content or by strength. In fact, these are the alternate methods provided in A.S.T.M. Standard Specification for Ready Mixed Concrete, designated as C-94. Special reference to ready-mix is very commonly supplementary to a general specification for concrete for the project.

However, a possible pitfall for the ready-mix producer occurs in cases where two or even three methods are named in the general specification, such as "nominal 1-2-4 proportions, to develop at least 2,500 lb. compressive strength in 28 days, and to contain at least 5½ sacks of cement per cu. yd." Unfortunately some specification writers have not concerned themselves as to the conflict of such provisions and do not realize that a dual or triple provision for quality does not obtain the lowest cost of material for their clients. Under such a specification the only safe action by the producer is to furnish the concrete involving the highest cement factor and to charge accordingly, although presumably the lowest cement factor would satisfy the structural requirements. Such multiple and non-consistent provisions also offer a bad competitive situation as another producer may deliberately quote on the lower content and accept the risk that the inspector may require the highest content available under the specification.

A concrete producer should be thoroughly familiar with the characteristics of the aggregates available in his market, especially as to maximum size, grading and durability. Occasionally the specification for an important project, written by an office not fully posted on a local market, may call for a size of coarse aggregate or for a percentage of fines in the sand which is not readily available; in such event the prospective supplier of ready-mix should probably point out the discrepancy to the purchaser prior to the letting to be sure he does not commit himself for material he cannot supply. The same precaution may apply to a strict enforcement of the colorimetric test in markets whose sand comes from streams in the vicinity of soft-coal fields, wherein particles of lignite may make a sand unsuitable for floors.

Through the years there has been marked improvement in the character of concrete specifications. The example of comprehensive specifications proposed by various technical groups dealing with concrete, especially the A.S.T.M., by the larger cities and the state highway departments, and by the Army and Navy, have all influenced the majority of specification writers to include realistic provisions which can be followed by producers, and are not the cause of later controversies. However, some important offices are still using "boiler plate" texts which were written many years ago and do not recognize improvements in production facilities such as weighing of aggregates. One glaring example is the use of a single figure for the proportion of aggregates, as for instance concrete to be mixed with proportions of 1 part cement to 6 parts of "combined aggregate"; this is usually understood to mean two parts of fine plus four parts of coarse aggregate. But in an area where the aggregate is a blend of fine and coarse, the proportions of 1 to 6 would result in a lower cement content than a 1-2-4, and thereby could become a subject of controversy. In such a case, or whenever there is uncertainty as to requirements of the specification, the ready-mix producer would do well to ascertain what quality the purchaser really wants in advance of naming a price.

In some areas there has been a

trend toward interpreting volume-proportions quite liberally as regards cement content. In general a 1-2-4 mix with ¾-in. or 1-in. aggregate would require from 5.2 to 5.5 bags of cement per cu. yd. of concrete. With the increase of strength due to accurate batching and thorough mixing as typical of a good ready-mix operation, the strength with 5 bags of cement will usually equal or exceed a job mix with 5½ bags. So first a single producer and then others in a given area may be tempted to price 1-2-4 ready-mix as containing only 5 bags of cement, with the result that in a short time 5 bags becomes the locally accepted cement factor. It is conceivable that a literally-minded purchaser may challenge this practice as not meeting his 1-2-4 specification, and thereby claim that a producer who furnishes a 5-bag mix is not complying with his obligation.

Another curtailment of cement content from a different approach has become established in at least one important area and probably others as well. In this locality ready-mix was not introduced until after recognition elsewhere that ready-mix offered higher strengths than job mixing, and also that 2,500 lb. strength is generally satisfactory for miscellaneous construction. Accordingly, in the area mentioned, the original ready-mix plant began furnishing 2,500-lb. concrete on 1-2-4 orders, and this has become accepted local practice. Although this practice has continued for a number of years, it would appear to involve some hazard if a structural failure from any cause should bring to judicial review the question of compliance with specifications.

Another realm in which there has been a growing practice of departure from written specifications has been in the use of admixtures, usually for purposeful air-entrainment or as a "dispersing agent", or both. Many ready-mix producers have apparently chosen to disregard the fact that A.S.T.M. standard specification C-94, mentioned above, prohibits, at least by inference, the use of admixtures when not provided in the specification or specifically authorized by the purchaser. These producers are regularly including one or more admixes in the batched quantities without regard to approvals.

In some areas where the available natural sand lacks fines, and so makes a "harsh" concrete, certain producers are deliberately adding an air-entraining agent to make the mix more workable, even to the extent of introducing as much as 10 or 12 percent entrained air, which in turn reduces the strength for a given slump and cement factor. Also there has been a growing use of so-called "dispersing agents" with a reduction in cement content, usually about 15 percent, with the thought that the reduction in cement is "compensated" by the action of the added agent to produce the anticipated strength; and usually air is also entrained to offset the loss of workability from reduction in cement. These practices might be acceptable in the case of a strength specification since the producer then assumes responsibility for furnishing concrete of a promised strength and may use his knowledge of materials to obtain that strength. But when a specification calls for given proportions or a certain cement content, without any reference to admixes or use of materials other than cement, aggregates, and water, then it appears that the purchaser is entitled to receive the indicated cement content, and not some reduced amount even though the producer knows that his "doctoring" the mix by introducing other unspecified materials will produce a more placeable concrete than

(*Continued on page* 223)

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USEFUL KINKS AND GADGETS
Found in Ready-Mix and Products Plants

This article is the first of a series which will be run from time to time providing information on "gadgets" which should be helpful to producers. This initial article refers to applications personally uncovered in the ready-mixed concrete industry. We are sure that many similar and equally usable ideas lie dormant in the minds of many persons connected with the other allied concrete fields. Accordingly, Pit and Quarry will pay $5.00 for each idea submitted and published, to include a brief sketch or photo of its application, of the type described, to apply to any plants or equipment producing any end products of concrete, such as ready-mixed concrete, concrete block, pipe, or other precast products. The application must be free of patent limitations and this publication is to be the sole judge of its suitability or date of use.

IN the course of visiting several hundred ready-mixed concrete plants over the past decade, we have seen many new and interesting mechanical applications, made by various persons from the boss down —but in many more instances from the shop mechanic or driver up—to get things done in their plants better, more quickly, or more efficiently. Al-

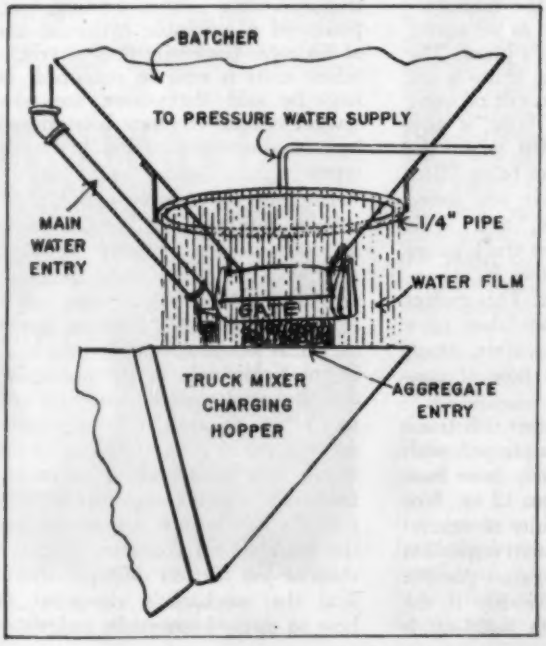
By ROY L. PECK

though we may use the terms "gadget" or "kink" in referring to these devices, neither is applied in a derogatory sense. By "gadget" we mean a device, by "kink" a method or a system, which has been worked out and found satisfactory—in other words, a better way to do a job.

Acting upon a suggestion that a description of some of these home-made appurtenances might possibly prove of value to other operators in the same business, the following few are here described. No guarantee is given that any of the devices described is free of the taint of patent protection. Each gadget is offered with the thought that if it helps one application, it may help in a similar one elsewhere.

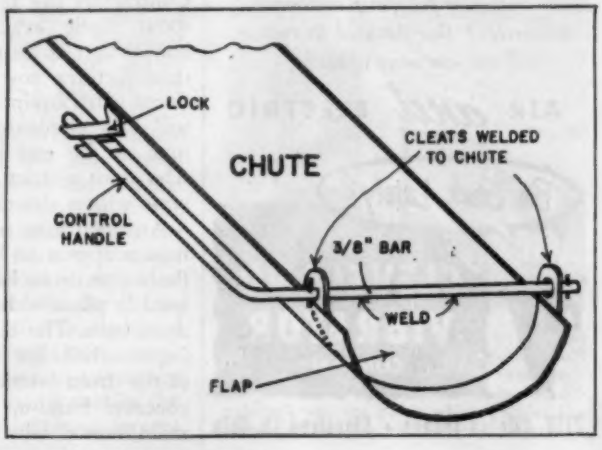
The first of these is a device for use in transit-mix (dry) plants, aimed at keeping the cement dust where it belongs — in the mixer drum. A loop of ¼- or ⅜-in. diameter copper pipe, with very small holes drilled in the bottom as closely together as possible, is placed horizontally around the cement boot or discharge gate, and positioned high enough to clear the charging hoppers of the truck mixers below. It is connected with the plant water supply, and under high pressure will produce a continuous sheet of water film around the cement or aggregate outlet, this water striking the charging hopper of the truck mixer just within its outer edge. While it uses only a negligible amount of water in the few seconds of its operation (while cement is being charged into the truck hopper), it effectively prevents any cement from blowing away; and if properly installed, it will also prevent cement build-up from occurring in the charging hopper. Such build-up slows the entry of all materials into the drum, unless it is constantly cut away. The circle of pipe can easily be attached by wires to the batching hopper. It should have a large enough diameter to permit operation of the cement boot or the discharge gate.

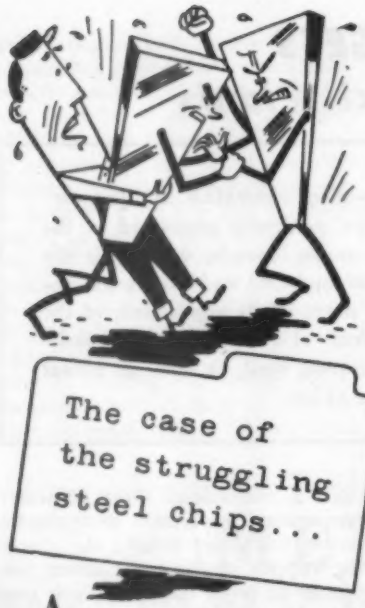
The next example of homemade ingenuity was a metal flap, set across the end of the discharge chute. This



(Left) View showing position of pipe around discharge gate, which provides water film spray, to prevent loss of cement and keep charging hopper clean.

(Below) Concrete retaining flap attached to lower end of chute to prevent "dribbling" on street and to control the discharge of a chuteful of concrete at job.





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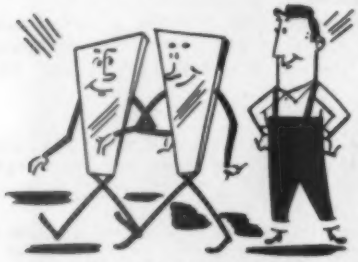

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piece of metal, shaped to fit closely into the contour of the chute, is welded to a ⅜-in. bar passing through two holes in cleats welded to the top end points of the chute. One aim of such a device is to prevent "dribbling" of concrete to the pavement on those occasions when the drum is slightly overloaded. Another is to control the discharge of concrete at the job. Retaining in the chute any concrete spilled out of the overloaded drum means no fines for dirtying the streets.

On the operator's side, the end of the bar is bent around parallel to the chute, to form a handle which holds the flap closed while in transit. When discharge starts, the flap acts effectively to control the flow of the concrete, by confining or releasing it as required, thus eliminating contractor's shovel labor at the end of the chute. The driver of the truck, operating the flap control, can hold back a whole chuteful of concrete or any portion of it, until it is wanted, a desirable feature at jobs where wheelbarrows take the discharge.

The third device answers the complaint of many contractors who, in placing concrete in wall or other narrow forms, find that the normal chute width of from 15 to 18 in. is excessive and apt to cause concrete to spill to either side of the forms. To correct this, one concrete operator coned down the lower end of one of his chutes to a width of perhaps 8 or 10 in., with a correspondingly deeper section than normal, so that the flow of concrete was narrowed, and all of it went smoothly into the narrow forms. This coning is easily done in the shop of the manufacturer, or it can be done as we noted, on rolls in the operator's plant. The cross-section area of the chute is not changed, but the end result of using a coned chute is that little, if any, concrete is spilled, even when the narrowest wall forms are being filled. Contractors like to have one coned spout made available, and it is known that at least one truck mixer manufacturer now offers it as optional extra equipment. This gadget will also eliminate the labor of a man at the end of a wide spout, who must restrict the flow of concrete with a shovel.

An increasing number of truck mixers appear to be equipped with flush-type drum hatches, those fastened in place with from 12 to 18 or more bolts. The difficulty of removing these bolts for frequent inspection of the drum interior against possible concrete build-up obviously is the main reason why such build-up is allowed to occur. One concrete producer, whose truck units were drum hatch-equipped, found a way to avoid this tendency to delay inspection. He cut two 4-in. diameter holes in the bolted-down hatch cover and installed new covers over each of these small holes. These were held in place with simple, strong, spring fasteners, similar to those used in fastening hub caps on an automobile wheel. These small plugs could be pried off quite easily with a screw driver or chisel. The inside of the drum was inspected visually through one of the holes, by means of an electric bulb lowered through the other hole. The plug covers could be re-set in place with a blow of a hammer after the condition of the inside of the drum had been determined. Here was a case of using the lower-cost flush hatches without having to remove the many hold-down bolts for drum inspection. This feature of having your cake and eating it, too" was later included by a manufacturer in the design of bolted drum hatches.

Difficulty in handling a chute full of concrete manually was responsible for the endeavor of several operators to effect a power lift for chutes. Without such a system, the contractor had to furnish men to handle this heavy load if the work at the job was to proceed expeditiously. One alert and ingenious concrete operator surveyed the situation so often confronting him, and by combining several commercial units, installed on one truck an electro-hydraulic pump unit, a valve, and piping, powered from the 6- or 12-volt battery of the truck. Thus, by trial-and-error experimenting, he produced a workable hydraulic lift of his own. His entire fleet of truck-mixer units is now so equipped. It may be said that there are now several systems of chute lifts offered by manufacturers, mostly hydraulic types.

Instances of devices such as described here eventually cause many manufacturers to embody the idea, usually in a superior form, in standard or optional equipment, after checking its possible universal application. It would appear that the man in the field, close to the operation, and endowed with imagination and ingenuity, has often in the past come up with many gadgets similar to the above, well in advance of the manufacturer's engineering forces. Apparently the latter's excursions into the ready-mixed concrete operator's shop or job far too infrequently reveal the mechanic's viewpoint of how to apply homemade gadgets.

SHIELY OPENS MODERN READY-MIX PLANT TO SERVE ST. PAUL AREA

another ON THE SPOT report

THE Guaranteed Concrete Company, an affiliate of J. L. Shiely Company, Inc., St. Paul, Minn., recently placed in operation a very modern central-mixing plant serving the St. Paul area. The installation was a part of a recently-completed $2,000,000 expansion program carried out by the Shiely firm, which

By KENNETH A. GUTSCHICK

also encompassed the building of a new 600-t.p.h. sand and gravel plant on Grey Cloud Island and a large new barge yard on the Mississippi River in St. Paul.* In addition, the company's older Snelling Avenue concrete plant was revamped by converting its batching facilities from manual to automatic operation. Both ready-mix plants incorporate central mixing units—the newer one having a 6-cu. yd. tilting-type mixer and the older a 3-cu. yd. unit.

The new plant began operations in April of this year; it is closely integrated with Shiely's new gravel plant and barge yard. All aggregates used there are brought in by barge from the Grey Cloud Island site and stored at the huge distribution terminal, which has a storage capacity well over 100,000 cu. yd. The yard

General view of the new ready-mix plant of the J. L. Shiely Company, Inc., St. Paul, Minn. A novel feature of the plant is the location of the dispatcher's office, with its wide windows on the batching floor, some 40 ft. above ground level.

is located in the eastern part of St. Paul about two blocks from the ready-mix plant; aggregates are delivered from there to the plant by truck. Because of the proximity to the terminal, there is no need to stockpile aggregates at the plant.

At the central-mixing plant, modern in all respects, a number of new and interesting features were incorporated. Manpower efficiency is especially notable, since only three men (besides the superintendent) run the entire plant. These include the dispatcher, the batching operator (who also operates the central mixer), and the yard man. The latter is used principally for unloading cement. Delivery of aggregates to bin storage is handled by the same truck drivers who shuttle back and forth between the dock yard and the plant; the pushbutton controls for operating the main delivery belt are located adjacent to the truck hoppers (see cover photo).

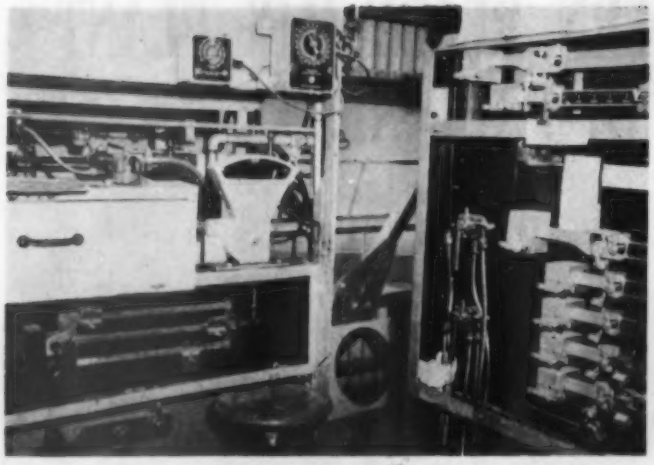
Besides the use of automatic batching, perhaps the most interesting feature concerns the location of the dispatching office. Unlike the practice in conventional plants, the dispatcher works from a vantage point some 40 ft. above ground level —on the same floor used for batching; however, his office is separated from the batching room by a soundproof wall. The principal advantage of this lofty site is that it enables the dispatcher to readily observe incoming trucks from all directions. (The only blind side is to the north, but no highways lead directly north due to the steep Mississippi River bluff.) Advance information regarding truck arrivals is important in streamlining the plant operation, since the dispatcher can immediately order a load and have it ready upon arrival of the incoming truck. This, of course, results in speedier deliveries.

This novel layout also facilitates

Dispatcher Paul Vincent using a transmitting unit to issue an order to the batching plant operator. Both men work on the same floor, within 25 ft. of each other. Note the dispatcher's vantage point, which enables him to observe readily all incoming trucks.

* These operations are described in detail in the September, 1954, issue of PIT AND QUARRY, pp. 68-77.

J. L. Shiely Jr., vice-president (left) and Ray DeVine, plant superintendent.



Two views of the automatic batching facilities. Left: The water batcher and dispenser for admixes are at the left, and the aggregates batcher at the right. Right: A closeup of the pushbutton controls for the entire batching operation. Note the unit (right) on which William Brehm, the batching operator, receives orders from the dispatcher.

communications between the dispatcher and batching plant operator, since the two men work within 25 ft. of each other. In spite of this fact, however, the firm makes use of a Telautograph system for transmitting written orders automatically and simultaneously from the dispatcher to the plant operator. This system eliminates mistakes inherent in the practice of transmitting orders verbally. A loud speaker system also adds to overall operational efficiency. Intercom units are used at the following locations: dispatcher's office, batching floor, mixing floor, truck driver's office, truck loading station, and aggregate unloading station.

The ready-mix plant was designed and built by the Butler Bin Company, which also furnished the bins, silos, screw conveyors, and weigh batchers. In addition, the plant is equipped with a T. L. Smith 6-cu. yd. mixer and Barber-Greene aggregates conveyors. Provision was made on the mixer floor to accommodate a second 6-cu. yd. mixer, if the need for expansion arises in the future. Present capacity of the plant is about 150 cu. yd. per hour.

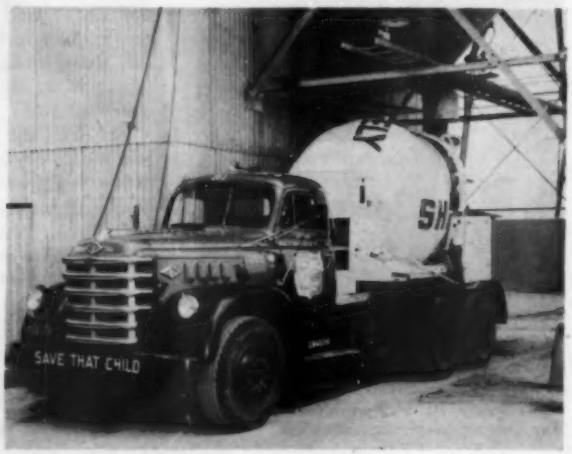
Aggregates are dumped into a pair of 15-cu. yd. steel hoppers mounted over a 30-in. by 60-ft. belt conveyor, which in turn transfers the materials to the main 30-in. by 225-ft. delivery conveyor. A pivoted turn spout, operated by cable from ground level, directs the material to the plant's six-compartment 600-ton storage bin. Each compartment is equipped with high and low signals; the panel board control for the lights is located adjacent to the truck hoppers.

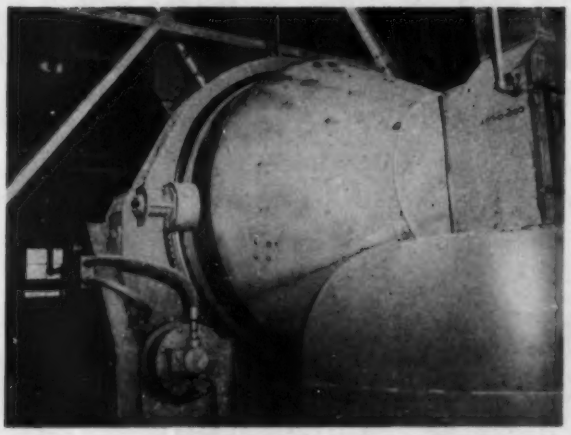
Cement is received by rail in covered hopper cars and transferred by an undertrack screw conveyor and an 80-ft. high bucket elevator to a two-campartment 600-bbl. tank located on the batching floor. When this tank is full, overflow is chuted by gravity to a two-compartment 2,000-bbl. storage silo at ground level. A unique feature of the cement-handling system is the use of a Dings Permaplate magnet on the chute leading to the 600-bbl. bin; this magnet removes any tramp iron found in the cement.

The batching plant consists of a 45,000-lb. aggregate batcher, a 4,000-lb. cement batcher, a 210-gal. water batcher, and individual batchers for Darex, Pozzolith, and other air-entraining agents. All of the units are compactly arranged and operated by pushbutton controls. Cement is delivered to the cement batcher by means of individual screw conveyors issuing from the two-compartment bin.

In the batching operation the weights for the individual materials are manually set; then the starter buttons (located on a panel board)

Two of Shiely's fleet of ready-mix trucks loading up; the discharge gate on the 7-cu. yd. collecting hopper is operated by the truck driver. Note the safety slogan on the bumper of one of the trucks.





Central-mixed concrete is produced in this 6- cu. yd. tilting-type mixer. This view shows the discharge end. On the right is the duct work which vents the cement dust to atmosphere.

which control the material flow are pushed. After the proper weights are attained in the individual batchers, the material gates, the cement screw, and the water cut-off valve are automatically closed or stopped, thereby stopping the material flow. Rapid and accurate weighing is effected by means of solenoid switches serving as cut-off devices. The material gates are air-operated. Additional pushbuttons control the flow of material from the batchers to the central-mixing unit.

The mixer, located on the floor below the batching floor, is a 6-cu. yd. tilting-type unit, driven at 9½ r.p.m. by a 100-hp. U.S. electric motor; it is operated by lever controls from the batching floor. As a means of alleviating dust in the mixing operation, the dust is vented to atmosphere by means of a suction fan and a tall stack. To insure the production of proper slump concrete, the firm uses an Imperial Indicating Tel-A-Slump metering device in conjunction with the mixer. This meter measures and indicates the load on the mixer motor during the mixing cycle. The operation of the device is based on the principle of the motor load being inversely proportional to the slump or consistency of the concrete. In actual practice the batching operator closely observes the dial reading. When the reading levels off at about 60 units after having reached a maximum of about 80 at the beginning of the mixing cycle, the operator knows the proper consistency has been reached. After mixing, (which takes about 1½ minutes), the concrete is discharged into a 7-cu. yd. collecting hopper; an air-operated gate controls the flow of concete into the truck mixers.

To insure the production of high-quality concrete, the Shiely firm makes frequent laboratory tests of the aggregates and the concrete. Every hour or less a moisture reading of sand is made using a speedy moisture tester, which gives an accurate moisture determination in less than 20 seconds. Compensation is then made by varying the water in cement.

Truck deliveries are made in a fleet of 16 Shiely trucks and several hired units. Fifteen of the fleet are Smith 3½-, 4½, and 5½-cu. -yd. mixers mounted on Diamond T, Mack, White, and International chassis. For smaller loads a Jaegar 3-cu. yd. truck mixer is used.

J. M. Shiely is vice-president in charge of both Guaranteed plants; H. F. Bielfus is fleet superintendent, and Ray DeVine, is plant superintendent. The firm's older Snelling Avenue plant now has automatic batching controls; however, its central mixer is a Ransome 3-cu. yd. horizontal-type unit.

R. Neil Christy Named Manager At Marietta's Florida Plant

R. Neil Christy

R. Neil Christy, vice president of production and engineering of The Marietta Concrete Corporation, Marietta, Ohio, has been named general manager of the company's branch plant, The Marietta Concrete Corporation of Florida, Hollywood, Fla. In his new position, Mr. Christy will direct the operation and sales activities of this new plant which was erected last year for manufacturing interlocking concrete block, precast concrete wall panels and farm and industrial silos.

Marietta, one of the nation's largest manufacturers of specialized concrete products, also has plants at Baltimore, Md.; Charlotte, N. C.; Bowling Green, Ky., and Nashville.

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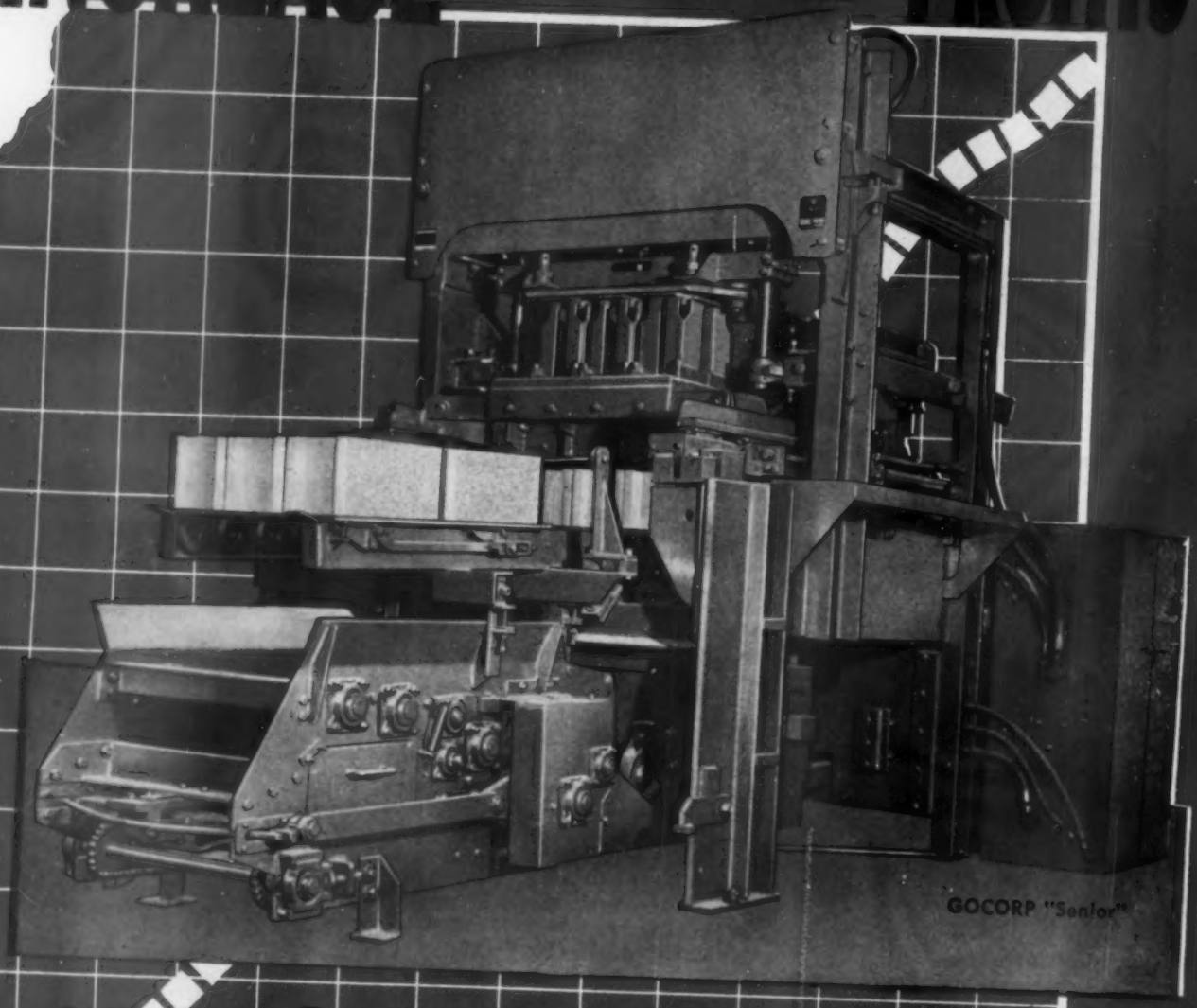

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HOME DESIGN PRIZES AWARDED BY WISCONSIN PRODUCTS ASSN.

AT a joint meeting of the members of the Wisconsin Concrete Products Association and the Wisconsin Architects Association, held at the Ambassador Hotel, Milwaukee, recently, awards were made to the winners of the three-months-long contest jointly sponsored by the two groups to stimulate interest in and better design of concrete masonry homes.

Each contestant in the competition received a photographic copy of his home design. The winners received checks as follows: first prize, $1,000, to Yasuo Nakao, Milwaukee; second prize, $700, to Douglas Drake and Virgil Magerfleisch (joint entry), Milwaukee; third prize, $400, to Leonard A. Widen, Milwaukee. An additional $900 was distributed as awards of merit to nine other contestants from various points in the state. Mr. Nakao, 20 years of age, is employed by Maynard W. Meyer and Associates, Milwaukee architects. He is a graduate of the school of architecture, University of Minnesota, 1953.

The purpose of the competition was to (a) apply architectural training to the design of concrete masonry homes within the financial reach of the majority of the home-seeking public; (b) stimulate in the public mind, through excellence and originality of the designs submitted, a greater understanding of the value of architectural services in home design; (c) offer opportunity and encouragement to young men in the architectural profession to contribute their skill to the continuing present-day high development in modestly-priced housing; and (d) keep competition rules to the minimum, to encourage a new and more varied approach to the design of small homes.

Each competitor was required to submit plans for a one-story, two- or three-bedroom concrete masonry home, with basement. In the case of a two-bedroom home, to be built within a price bracket of $12,000 to $13,000, the living area was restricted to the maximum of 1,100 sq. ft.; and in a three-bedroom home ($14,000 to $16,000), a maximum area for living space was set at 1,200 sq. ft. Provision must have been made for using load-bearing walls of concrete masonry in the design, and for providing for utilities and other storage areas in the basement layout. Participation was limited to *bona fide* Wisconsin residents who are architects, draftsmen, and students of architecture who were registered, employed, or studying in the state.

The jury which determined the awards, five prominent architects of Wisconsin, commended the Wisconsin Concrete Products Assn. for its sponsorship of the contest, which provided the younger architect with an opportunity to contribute his skill to the continuing high development in housing in the modern income bracket. Members of the jury added that they feel that the small modern home of today has achieved a high level of architectural merit, primarily through efforts of this kind. All competitors were commended for the general excellence of the designs submitted with special commendation going to the top three winning designs. Mr. Nakao's work was praised for its proportions, flexibility of use, for the free circulation of plan, and for the multi-use of space throughout. All winning plans were displayed at the Wisconsin-At-Work Building at the State Fair, held in Milwaukee from August 21 to 29, and the designs will later be incorporated in a booklet on concrete masonry homes, to be issued by the association.

At the award dinner meeting at which Julius Sandstedt, president of the Wisconsin Architects Association presided, Leigh Hunt, secretary, announced the winners; and Fred Yahr, president of the products association, presented the awards.

American Webco Corporation Offers New Concrete Unit

American Webco Corporation, Sewickly, Pa., is a recent incorporation formed to manufacture a new type concrete building unit, said to be 25 percent stronger and to possess greater insulating value than conventional units.

Raymond A. Tucker Jr., president of the company, named R. G. Forsberg as vice-president and William H. Colbert as secretary of the firm. Mr. Forsberg has been a manufacturer's agent since 1945, and was formerly purchasing agent for the Jessop Steel Company, Washington, Pa. Mr. Colbert is associated with the Pittsburgh law firm of Wright and Randle.

Officers of the sponsoring associations and the winners view the award-winning design. Rear row, left to right: Ray Minette, Fred Yahr, Julius Sandstedt, and Leigh Hunt. Front row, left to right: Yasuo Nakao (first prize), Douglas Drake, Virgil Magerfleisch, and Leonard A. Widen.

Winning design in W.C.P.A.—Wisconsin Architects Assn. competition, submitted by Yasuo Nakao of Milwaukee. All structural materials are of concrete masonry or precast products. House has full basement and exposed masonry units on all exterior walls. Floors are of precast concrete planks with 2-in. topping.

MIAMI PRODUCER ANSWERS QUESTIONS ON PRODUCTION OF SLUMP BRICK

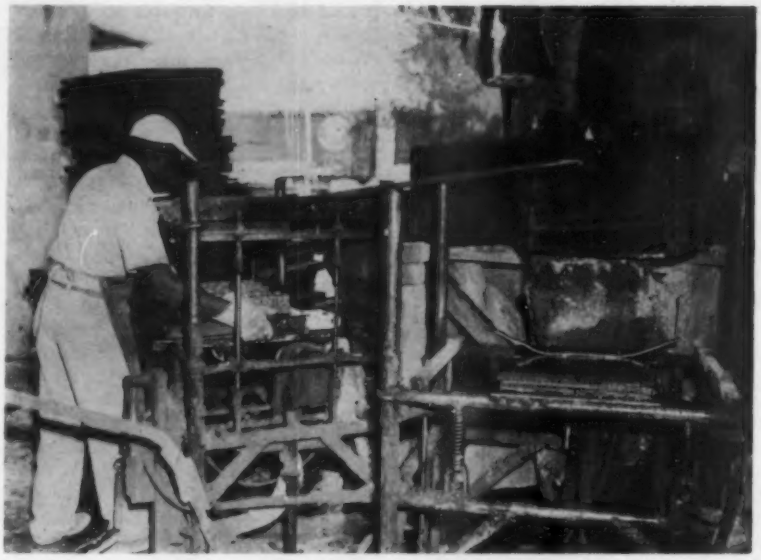
another ON THE SPOT report

DURING the last year there has been a marked increase in the number of requests directed to this publication for information concerning the manufacture of slump brick. Because the production of such units is still far from common in the northern states, we finally located and ran down a production story in that section of the country where slump brick and block are believed to have originated—southern Florida, to be specific.

The product is by no means a new one, and the methods used in its manufacture are pretty much the same as those employed when slump brick were first manufactured in the 20's. The firm we called upon for information is Buildo Industries, Inc., which formerly operated a plant in Coral Gables, but which is now manufacturing at a new location in South Miami.

Ninety-five percent of this company's total output of slump units is used for trim in homes, institutional buildings, and business structures built predominantly with conventional concrete masonry units. Occasionally, however, an entire home is built with Buildo's 8- by 16-in. slump units.

Since Buildo produces nothing but slump units, its facilities and practices are all tailored to the special needs of that material. Raw materials (pea rock, sand screenings, and portland cement) are batched by volume and mixed for about five minutes in a one-bag mixer. No admixtures are used.



View of the two slump brick machines operated by Buildo Industries, Inc., Miami, Fla. The workman is picking up a pallet of freshly-made units from the vibrating plate. The mixer at the upper right serves both machines.

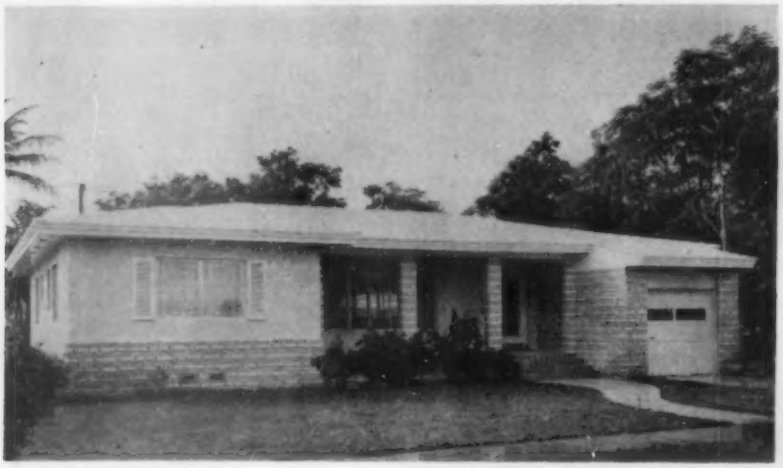
For obvious reasons a definitely wet mix is needed, but the exact amount of water is quite critical. There seems, in fact, to be rather less leeway than is ordinarily considered permissible in the dry mixes used for manufacturing conventional concrete block. Too little water seems to prevent vibration and to cause voids in the units; too much may cause them to collapse entirely.

In the quarter-cu. yd. batches used by Buildo the minimum water requirement for slump units seems to be around 3 gallons when wet sand is being used, and it may range up to 5 gallons if the sand is quite dry. The final criterion is the operator's judgment of how the material is behaving in the molding machines.

The mixer discharges onto a flat table approximately 4 ft. above floor level, and the materials are raked from this point into the two adjacent molding machines. As the photographs show, the machines are relatively simple devices consisting mainly of welded pipe frame works. The slump units are molded on plain pallets resting on spring-mounted steel plates which are free to vibrate. An overhead mold is lowered until it rests on the pallet; then the wet mix is raked into the mold and struck off by hand. The mold is stripped by means of a weighted lever, and the vibrator motor is turned on for several seconds until the required amount of slump has occurred. The pallet is removed from the machine and is placed in a rack which accommodates a total of 30 pallets, or 240 standard 4- by 8-in. brick units.

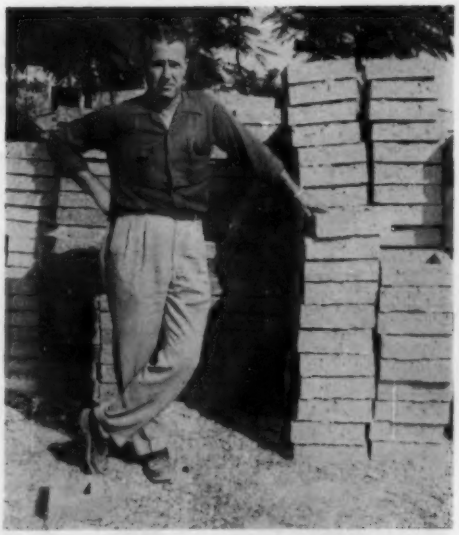
The racks are stored in a shed overnight, and then removed to the yard, where the units are kept wet

This attractive new home in a Miami suburb typifies the way in which slump units are most frequently used in south Florida. The principal exterior wall surfaces are of conventional concrete block, covered with stucco. Slump units are used to dress up the appearance of many homes.



Left: A closeup of the entrance of the home shown on the preceding page indicates the pleasing rough-textured appearance which constitutes the main appeal of slump units.

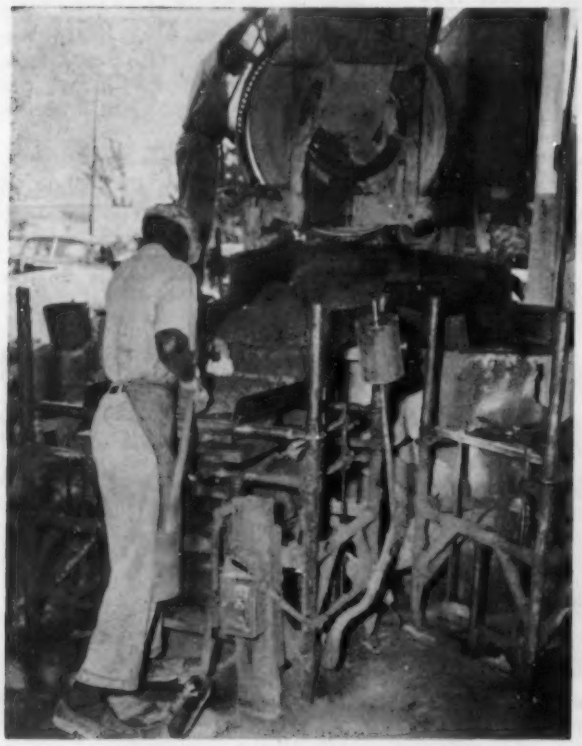
Right: Arthur A. Morris Jr., president of Buildo, standing before a pile of one of the many types of slump units which his company manufactures.



for several days in order to restrict breakage to the minimum. If possible the blocks are left on the pallets for three days before they are stripped—this to prevent the high breakage that would take place if the exceedingly irregular units were stripped and stacked too quickly.

The pallets used by Buildo are of more than ordinary interest. They measure 24 by 21 in. and are of wood construction with tempered Masonite tops. The Masonite tops are oiled after every third or fourth use by wiping them with a rag soaked in a mixture consisting of two parts light Amplex oil and one part heavy castor oil. This practice reduces the bond between the block and the pallets to negligible proportions and results in remarkable over-all pallet performance. Many of the 1,400 pallets in service today have been in constant use for the last five years.

Buildo operates ten different molds to produce a generous range of slump units all measuring 3 in. in thickness. The basic sizes are 8 by 8, 8 by 12, 8 by 16, 4 by 8, 4 by 12, 4 by 16, and 3- by 16-in. veneer. Also available are 1½-in. thins in 8's, 12's and 16's, as well as 12- by 12-in. column block, and 12-in. circular column units made in two 180-degree sections.



This view of the slump brick machine shows how wet concrete is raked from the table beneath the mixer into a simple molá box. After consolidation, the mold box is stripped upward with the weighted lever. Units slump when the table vibrator is turned on briefly.

Although natural units account for about 90 percent of Buildo's sales, there are occasional flurries of heavy demand for colored slump units, and these are accordingly manufactured and stocked as regular items. Three basic colors (yellow, red, and brown) are used, and two additional colors are produced from these by blending. The company will also produce any color the buyer wants on special orders, although it prefers to avoid this complication wherever possible.

Pure iron oxide colors are used exclusively. These are first mixed by hand in the proportions of 3 lb. of color to 2 quarts of water. The color solution is then added to the concrete in the mixer, each batch receiving the minimum of 3 lb. of color. So long as basic colors are used, and care is taken to see that the correct amounts of materials are used, little trouble is experienced in reproducing color shades, although some variations occur from time to time which appear to result from differences in the cement used. Several communities in the Miami area have rather explicit ordinances regarding color, and these restrictions on the whole have had the effect of simplifying the color problem for producers of concrete units.

Most of Buildo's sales are made through building contractors, although three material yards in the area stock and sell the company's product. The firm has built a sound reputation for itself and a steady demand for its product since entering the slump brick field approximately eight years ago. Its experience, and the experience of other concerns with the same product, seem to indicate that slump units might do well in many sections of the country in which they are at present relatively unknown. Properly used for purposes of accent along with conventional block, there seems no doubt at all that slump brick could be a useful tool in the promotion of concrete units in residential construction.

Plant Makes Prestressed Structural Members For Large New York Wharf

Scene at the Precrete operation, where prestressed members are being made for a wharf project of the New York Port Authority. While 5/16-in. strands are distributed on the bed, workmen also assemble the forms.

THE use of prestressed concrete construction in the New York area has been spurred by the success of Merritt-Chapman and Scott in using pre-tensioned and post-tensioned units manufactured

By FITZGERALD C. SMITH

by Precrete, Inc., on a marginal wharf project for the New York Port Authority.

The wharf, designed by Parsons, Brinckerhoff, Hall, and McDonald, is being built around the vent building of the Manhattan entrance of the Lincoln Tunnel. It is the fourth large-scale wharf project in New York to employ prestressed concrete, the others being Pier 57 in New York, Pier C in Hoboken, and Manhattanville College.

Although in recent years the use of prestressed concrete has increased, designers have generally shied away from it because of the first investment expense in setting up manufacturing facilities and the time required to train inexperienced engineers and labor crews. This was the main problem encountered in the three previous projects in the New York area, each built by a different general contractor, starting from scratch in the prestressed field. However, because the Merritt-Chapman and Scott prestressed work was subcontracted to Precrete, Inc., a permanent manufacturer in the field, it is estimated that a 10 to 15 percent saving was made.

The Precrete plant is located in the Astoria section of Queens in New York, a half-mile from Flushing Bay, permitting the prestressed stringers and girders to be transported by barge to the site of the marginal wharf, on the North River at Thirty-ninth Street. The plant covers an area of 259 by 200 ft., and employs about 50 men. Both pre-tensioned and post-tensioned units are manufactured in Astoria, although post-tensioning can be accomplished in the field.

Two Freyssinet-style pre-tensioning beds, each 22¼ ft. long, are used in manufacturing the prestressed stringers. The benches, which are designed for universal use, are suitable not only for pouring stringers, but also can be used for 5-ft. wide slabs or 4-ft. deep bridge girders. It is possible to apply a maximum compression force of 400 tons at 6 in. above the bed level, or 200 tons at a foot above the bed. The benches are formed by 6-in. deep concrete slabs reinforced with wire mesh and longitudinal stiffener ribs. In order to transfer the prestressing force to the bench, the end abutments are tapered down to a 5-ft. thickness.

At both the jacking and dead ends of the beds steel structures provide the maximum flexibility. A 2¼- by 20-in. plate spans the gap between 24-in. I-beam uprights at the dead end. The pre-tensioning strands are anchored into 1½-in. templates which vertically span between the 2¼-in. plate and the angle at the edge of the bed.

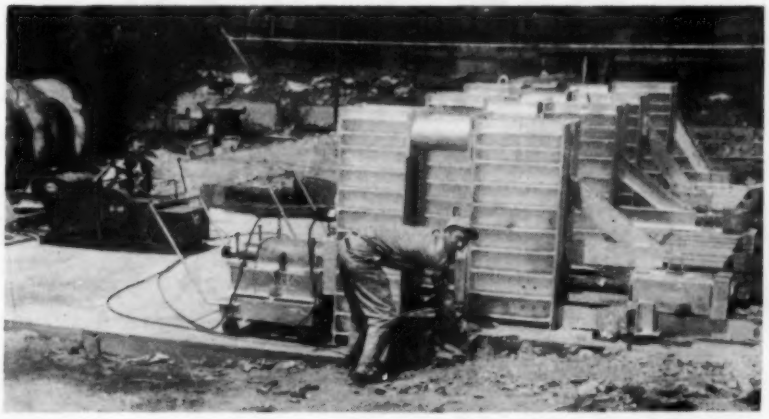
The jacking end has similar 24-in. beam uprights, jacking sandwich

The ¾-in. plywood end walls, with pre-cut holes, are placed over the stressed strands and braced against the side forms.

Workmen anchor the strands to the templates bearing against the jacking beam. Wax paper is applied between the jaws and the steel casing to make for easy dismantling.

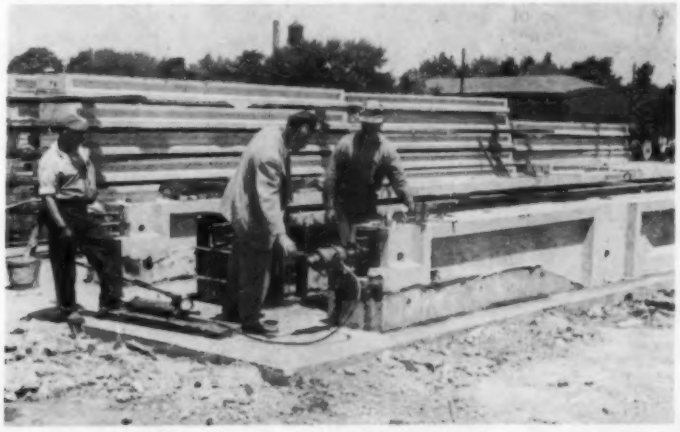
beams, secondary uprights, pulling rods, center pull jacks, and rods. Two 200-ton double-acting center-pull jacks, manufactured by the Williams Pine Company, of Los Angeles, Calif., bear against the secondary uprights, which are supported at the top by main uprights and at the bottom by the end of the abutments. The operation uses 3½-in. diameter threaded alloy steel pulling rods which are equipped with three nuts. The end nuts transfer the pull from the jack in the middle when driven home to bear against the main upright to the sandwich plate. The assembly is held in its stressed position by the third nut. With this system the jacks can be uncoupled without loss of tension.

The jacks are pushed by a 10,000-p.s.i. Rogers pump. Special valves permit the pump to push and retract the jacks under equal or unequal pressure with equal or unequal travel. The stressing steel is made up of 7-wire, 5/16-in. diameter stress-relieved strands, with a minimum breaking strength of 15,000 lb. manufactured by the American Steel and Wire Company. The strands are anchored into the templates with special jaws, made by the Reliable Electric Company, which are wedged in-



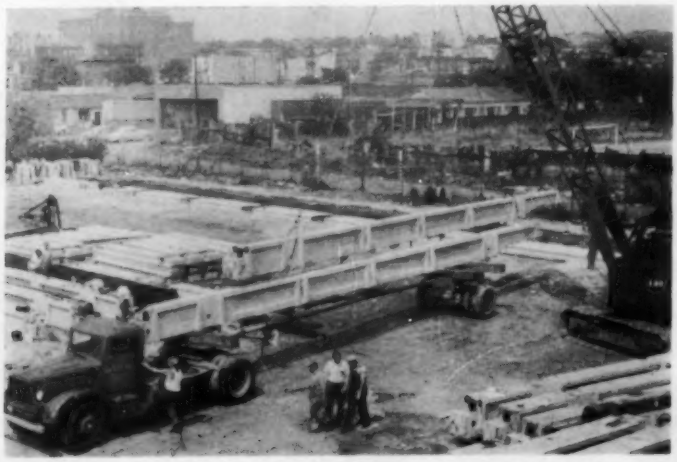
During stressing a 10,000 p.s.i. pump pushes the two 200-ton jacks, and the 3½-in. threaded rods pull the sandwich plate jacking beam back 18 in.

The forms, built of steel, timber, and plywood, are assembled ready for the concrete.



George Pinter, project engineer, checks the elongation of the stressed bar. A pump and a center-holed jack are used for the stressing. The cantilever end rests on a concrete false bottom.

After all three bars have beens stressed, grout is pushed into the space between the flexible tubing and the bar through a ⅜-in. pipe connected to the tubing.



A crane loading a girder on the truck. The member will remain in storage until it can withstand 4,200 p.s.i.

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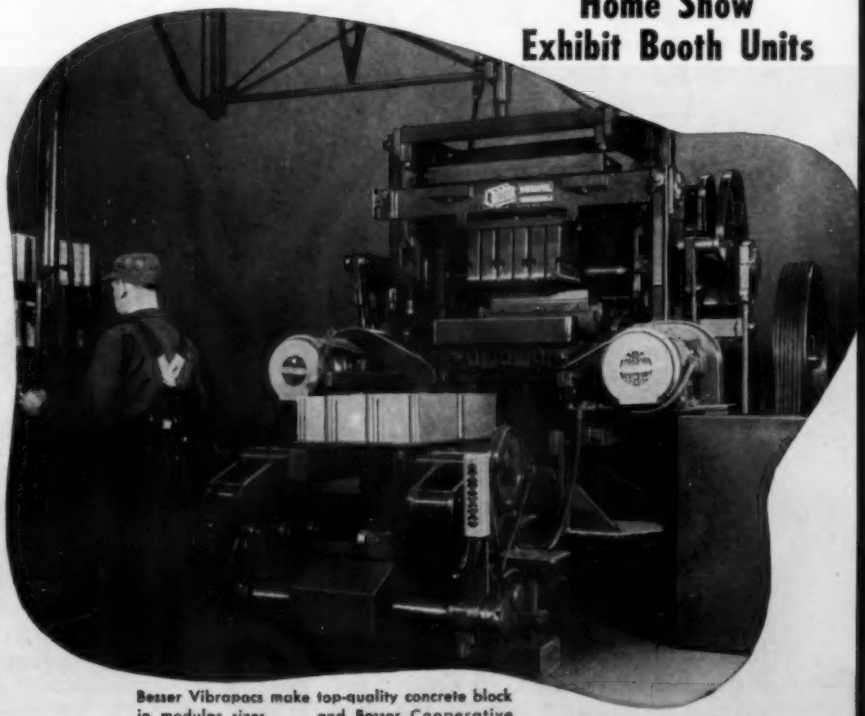

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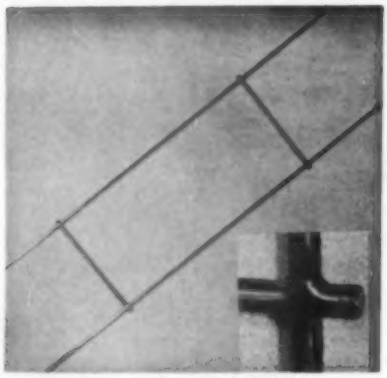

(Insert shows Flush Weld)

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to steel casings. As computed from the stress strain curve, the total elongation of each strand is 17½-in.

The bed has a capacity for ten pairs of 18-ft. or 11 pairs of 16-ft. long stringers. The forms for each stringer, built of beveled timber anchored to an angle frame, consist of a center and two side pieces with perforated dividing walls. Richmond anchor screws are used to anchor the forms to the beds. Wood has been cheaper in the construction of the forms in this instance because the sub-contract calls for their re-use only about 32 times. The stringers are 18 ft. long, 2 ft. 5 in. wide, and 11 in. deep.

After the stringers have been cured for two nights and a day, an inspector from the Port Authority picks up the test concrete cylinders which have been cured under the same conditions and takes them to the testing laboratory. If the test can take a 3,500-p.s.i. load, the side forms are stripped from the stringers and the bolts are removed from the center forms preparatory to releasing the tension. When the tension is released, the stringers move forward almost 4 in. at the jacking head and ½ in. at the dead end.

The wires are then cut and the stringers are removed by a Koehring 605 crane. After the bed is cleaned, the new strands are distributed and tensioned during the morning. In the afternoon after the workmen have oiled and set the forms, concrete is poured. This same process is repeated on the other bed the following day.

The plant contains eight beds for the post-tensioning of the 12-ton, 62-ft. long, 2½-ft. deep modified T-shape girders. The top flang is 21¼-in. wide. The process for post-tensioning the girders was adapted by the Stressteel Corporation, Wilkes-Barre, Pa., from the British Leo-McCall system. Three 1⅛-in. diameter stressteel bars, enclosed in a flexible metal tubing, are used for each girder. In addition to the stressteel bars, a conventional reinforcing bar cage is provided to take care of the secondary stresses and the compression behind the anchor plate.

The bars consist of hot-rolled, cold-worked, alloy steel with tapered threads at the ends. Nuts and anchor plates which bear against the cured concrete hold the bars in stressed position. Modified 60-ton simplex jacks (made by the Templeton Kenny Company) with hand pumps—one on each end of the bar—are used for stressing the bars. Skim plates fill in the space between the anchor plates and the nuts driven in home position. From the stress strain curve, an elongation of 3⅛ in. is computed for the girder. A prestressing force of 100,000 lb. is applied to each bar.

After the stressing has been completed, the space between the tubing and the bar is grouted, using a combination of four parts of cement to one part of water. The grout is pumped through ⅜-in. pipes at the middle of the girder until it shows up at vent holes at the ends.

The total prestressing force of 100,000 lb. is not applied usually until the test concrete cylinders reach 4,200 p.s.i. However, in order to expedite the process at the Precrete plant, one of the three bars is stressed when the concrete can take 3,500 p.s.i. loads. The girder is then strong enough to carry its own dead weight, and the Koehring 605 crane picks it up by the lifting sleeve and transfers it to storage until the concrete is cured to withstand 4,200 p.s.i.

Here again, in the interests of economy, beveled timber and ¾-in. plastic plywood forms, bolted to steel frames were used for the post-tensioned girders.

The concrete is mixed at an associate plant of Precrete, Inc.,—Precast, Inc.,—in a Koehring, Type 27S, 1-cu. yd. mixer and taken 5 miles to the prestressed operation in two Dumpcrete trucks, where it is poured directly into the molds.

A few trial mixes showed that if the mix was stiff or if regular cement was used, it was difficult to remove the concrete from the trucks. Therefore 7.15 bags of air-entrained high-early-strength cement is used, getting a 3-to 4-in. slump. This mixture does not show any segregation and is removed easily from the Dumpcrete trucks. An aggregate of nominal ¾-in. crushed stone and sand is used.

The plant is managed by Innis O'Rourke Jr., whose father and grandfather both John F. O'Rourke, have always been in the concrete business. The grandfather was a famous builder of subways and six tunnels under the East River. George S. Pinter, consulting engineer, who was a licensee of the Freyssinet process in Hungary, designed and engineered the job.

At Muncie, Ind., Fullhart's Ready-Mixed Concrete plant was purchased by the Salling Concrete Corporation, Anderson, Ind., which will modernize and improve the Muncie facilities.

Anchor Concrete Products Installs 90-ft. Autoclaves At Plant in Buffalo, N. Y.

Another important step has been added to the long list of accomplishments of Anchor Concrete Products, Inc., Buffalo, one of the largest producers of lightweight concrete masonry units in the United States.

The autoclave process of high-pressure steam-curing was formally introduced to contractors and business men on June 30 in ceremonies at the Anchor plant and at a luncheon at the Buffalo Athletic Club. An earlier open house was held for architects, engineers and public officials; and two more will be held for dealers and for masons and bricklayers. A fifth open house will be held in March, 1955, during the convention of the Autoclave Building Products Association.

The project represents an investment of $250,000, and when fully completed will run more than $400,000, according to Frederick W. Reinhold, president of Anchor Concrete Products, Inc.

While Anchor Concrete Products is less than 20 years old, having started from a small operation in 1936, it is one of Buffalo's fastest growing industries.

The first three of five 10-ft. dia. by 90-ft. long autoclaves to be installed at Anchor are said to be the largest in the autoclaved masonry field. These cylindrical steel vessels have a new type of quick opening door, hinged so as to swing by one hand, yet strong enough to withstand the bursting force of a thousand tons exerted by the 150 p.s.i. steam pressure which produces most effective results in concrete curing.

"The effect this process has," said Mr. Reinhold, "is that in 12 hours from the time the green masonry units are charged into the autoclave, they are ready to be delivered on the job, preshrunk, stronger, lighter in color, more completely cured, and more volume stable than ordinary blocks a year old."

Temperatures in the autoclaves reach a high of 365 degrees F. at a working pressure of 150 p.s.i.

Newly-produced blocks are picked up by lift trucks and run directly into the autoclaves. When the autoclaves are filled, the doors are clamped shut and the process of high pressure steam curing started. Within 12 hours the blocks are ready for delivery.

In the installation of the autoclaves, Anchor was aided by John K. Selden, Research Foundation of the University of Toledo, as consultant.

At first open house on April 21 President Trevor William Rogers of the Buffalo and Western New York Chapter of A.I.A. swings the bottle of champagne to christen the 90-ft. cylinder while Fred Reinhold, president, Anchor Concrete Products, enjoys the ceremony.

A.C.I. Issues Bibliography On Prestressed Concrete

The American Concrete Institute's new 86-page book, *Bibliography On Prestressed Concrete*, lists some 2,000 American and foreign references on the subject of prestressed concrete which were published from 1896 through 1953. A separate section lists some 60 United States, British, German and French patents pertinent to the subject. The book was prepared as a part of the work of A.C.I.-A.S.C.E. Committee 323—Prestressed Reinforced Concrete.

The 8½-in. by 11-in. format is punched for easy filing in three-ring binders. Price—$2.00.

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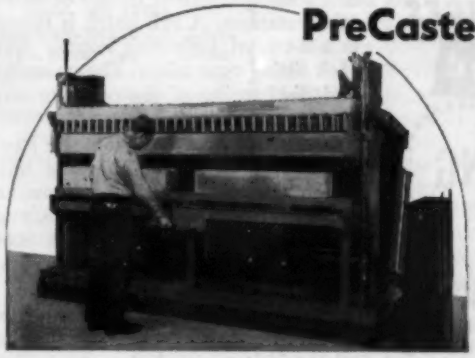

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United Concrete Pipe Co. Triples Former Capacity At Baldwin Park Plant

United Concrete Pipe Corporation has tripled the capacity of its centrifugal reinforced concrete pipe manufacturing facilities at Baldwin Park, Calif. The enlarged plant, now one of the largest in the country, will produce 1,500 feet of centrifugal pipe, in diameters ranging from 12 in. I.D. through 84 in. I.D., in an average eight-hour shift.

With the exception of concrete mixers, various electric power units, and a boiler, all equipment was designed by U.C.P.'s engineering staff and manufactured in the firm's own shops. The pipe molds, in which pipe sections are formed, are one-piece. This method varies from the usual split mold method and helps produce concrete pipe of uniform and consistently high quality. To permit removal of completed pipe sections from the molds, a measured coating of wax is sprayed onto the inside of the mold as it slowly revolves on a special turning device. Molds are handled to and from the spinning machines by strongbacks and 15-ton monorail hoists.

• Pipe yard of United Concrete Pipe Corp., Baldwin Park, Calif. Plant produces 1,500 lin. ft. of 12-in. to 84-in. dia. pipe daily.

Motor-driven trolleys and hoists handle the steel reinforcing cages. Cages are wound in an elliptical shape and every transverse and longitudinal rod intersection is automatically welded. Completed cages are accurately positioned and suspended within the waxed molds, using overhead cranes and "C" hooks. Cage spacing is carefully checked prior to spinning the pipe.

Concrete aggregates and cement are weigh-batched in separate scales and then transported by a 24-inch belt conveyor system to one of three mixer stations. A full batch is stored in a 3-cu. yd. collecting hopper over each tilting type mixer. The charging and discharging of the concrete mix are regulated by air controls.

The mixer discharges into the 7-cu. yd. hopper of a belt charging unit which meters uniform amounts of properly proportioned concrete materials into the revolving molds. The spinning operation then densely compacts the materials.

Freshly spun pipe is rolled into position in one of the steam rooms, where it is steamed at a controlled temperature below the melting point of the wax for 6 to 8 hours. The temperature then is increased and the wax melts and runs out of the molds. This provides a space between the outside of the pipe and the inside of the mold, permitting the removal of the finished pipe from the one-piece mold. The wax is collected through troughs and separators for re-use.

The pipe is stripped from the mold by an hydraulically-operated mobile stripping unit which simultaneously delivers the mold back to the waxing skids and the pipe to storage skids. In some cases, curing is continued for an additional 6 days by keeping the pipe surfaces moist. After stripping, the molds are cleaned, cooled, re-waxed, and are ready for re-use.

U.C.P. built the new addition to their Baldwin Park plant to handle an increasing demand for reinforced concrete pipe for use in water, irrigation, and sewage systems; to increase the range of centrifugal pipe sizes; and to improve pipe quality. Other types of concrete pipe are manufactured at its Baldwin Park plant, as well as at 15 other company plants.

Lacy Peyton, founder of the Peyton Concrete Co., Benton, Ill., died on June 28 at his home, after an illness of several months. He was 75 years old. He had sold his interest in the concrete plant a few years ago.

Get 4 BIG ADVANTAGES

with Servicised

AIR ENTRAINING AGENT

1. Liquid can be added to gauge water or introduced into mix
2. Provides greater control – more flexibility to meet individual specifications
3. Small quantity produces maximum air dispersion
4. Will not settle out in storage or gum dispensers

Servicised Air Entraining Agent is a low cost, extremely stable solution which, when added to gauge water or introduced directly into the mix, permits strict compliance with air entrainment specifications. In addition, the concrete mix is more plastic . . . handles easier . . . flows freely requiring less attention during pouring . . . less vibration after placement. Available in 5 gallon cans or 53 gallon drums.

Write for complete details and illustrated circular.

SERVICISED PRODUCTS CORPORATION
6051 West 65th Street, Chicago, Illinois

A real opportunity for

CONCRETE YARDS

who can qualify . . .

Lakeland Engineering Associates' proven prestressed concrete product designs are now available for manufacturing under a LEAP exclusive franchise.

LEAP concrete products are made by the perfected pretensioning method in long casting beds and the exclusive designs include: Roof Slabs . . . Floor Slabs . . . I beams . . . tee beams . . . columns . . . piling . . . power poles . . . fence posts . . . lintels . . . sea walls . . . bleachers and other products.

LEAP designed products have longer spans, lower maintenance, better fire resistance, and lower "first-cost" than most conventional construction . . . which they will replace.

A LEAP Franchise supplies: Exclusive Product Designs . . . Manufacturing "Know-How" . . . Engineering Services . . . and Selling Techniques.

WRITE TODAY! . . .
. . . if you have the space . . . shipping and erection facilities . . . sales promotion ability and the financial responsibility to undertake a profitable prestressing yard operation.

LAKELAND *Engineering* ASSOCIATES, INC.
LAKELAND, FLORIDA

R.M.C. Specifications

(*From page* 206)

the specified materials alone. Some producers might wish to review their policy with respect to such reductions in cement content and the corresponding description of such concrete as invoiced.

The use of a considerable percentage of fly-ash, which has a pozzolanic value in the presence of free lime, as a replacement for a similar portion of the cement content, is a recognized procedure which has proven satisfactory and economical on many important structures. But this adjustment is usually in accordance with specification provisions, and in such cases cannot be criticized from the standpoint of lack of mutual understanding between producer and purchaser.

To summarize briefly, we repeat that a "ready-mix producer is obligated to comply with the specification for each job he serves." Any departure from the specification which has not been authorized by the purchaser may lead to serious unpleasantness.

Louisiana Plant Turns Out King Size Prestressed Piling

On Bayou Boeuf, 9 miles from Morgan City, La., production of outside units of concrete piling began this summer in the plant of Gulf Prestressed Concrete Products. The piles were developed and designed by Raymond Concrete Pile Company, which holds patents covering the process. The firm is a joint venture of Raymond Concrete Pile and J. Ray McDermott Co., Inc.

Although this type of piling is made at other points, this setup is said to be the largest centrifugal casting plant of its type ever made. Here 16-ft. concrete hollow cylindrical sections 54-in. in diameter are turned out which can be assembled by means of steel wire into a pile as long as 200 ft. A 16-in. section of pile can be made in 20 minutes. By means of two separate 2-cu. yd. mixers—a Ransome and a Besser—it is possible to produce piling and deck slabs simultaneously.

A 75-ton gantry crane was brought to the plant site from Africa, where it had been used by the United States Government in a Point Four Program project. It was installed on steel rails set on concrete slabs, and is presently placed so that it can perform such varied tasks as loading barge shipments and handling big sections of piling or equipment. The crane carries 84 tons of counterweight for the heaviest jobs.

no better mixer at ANY price!

The new ROCKET

Yet costs less...

FEATURE FOR FEATURE, YOUR BEST BUY!

HYDRAULIC CHUTE CONTROL eliminates man-handling. Controls grouped for easy access. NO EXTRA COST!

ALUMINUM CHUTE cuts weight two-thirds! Easy to handle. Extra extension gives new longer length.

REVOLUTION COUNTER built in, so you car handle any specifications with the Rocket!

SPECIAL ALLOY, abrasion resisting steel used at all wear points.

UNOBSTRUCTED HOPPER, for fastest charging, no spilling or waste.

POSITIVE CHAIN DRIVE flexible power, not affected by truck twist, road shock.

STANDARD INDUSTRIAL ENGINE, truck-type transmission. Repair parts available at nearly every garage or repair shop.

THREE-POINT SUSPENSION, one-piece cast steel precision machined ring.

...far less than other comparable high-quality truck mixers!

Frankly, there are a lot of good truck mixers on the market today. The Rocket is one of them. We're not claiming that the Rocket is by far the best, but it's a *fact* that you can't buy a *better* truck mixer—anywhere!

You'll be pleasantly surprised to learn that the Rocket actually sells for many hundreds of dollars *less* than most truck mixers of comparable dependability, ruggedness. And it's economical—good for many years of trouble-free operation.

The reason you save substantially is that the Rocket is sold *directly to you.* There are no middle-men. What would be your distributor's profit is passed along to you in the form of savings.

If you are efficiency-wise and economy-minded, but insist upon the best equipment money can buy, then the new Rocket is the answer for you. Send the coupon *today!*

4 MIXER 5 6 AGITATOR

DEMAND THE BADGE OF DEPENDABILITY

MAIL THIS COUPON TODAY!

CONCRETE TRANSPORT MIXER CO.

4989 FYLER AVE. ST. LOUIS 9, MO.

FLanders 2-7800

Gentlemen: Please rush full information, prices and terms on the following: CM

☐ New Rocket Revolving Drum Truck Mixer

☐ Batching Equipment ☐ Water Meters

☐ Hi-Lo Stationary Drum Truck Mixer

☐ Materials Handling Equipment

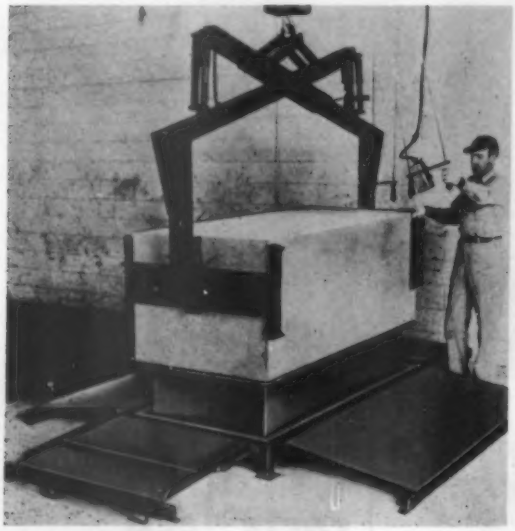
Name_____

Firm_____

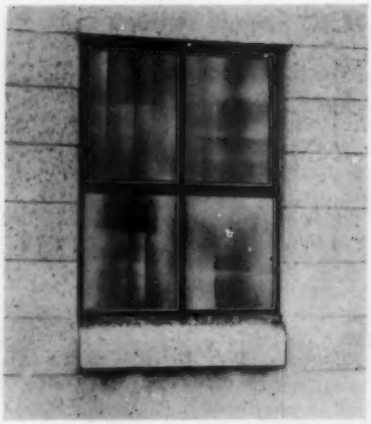
Address_____

City_____ State_____

CM New Machinery and Supplies

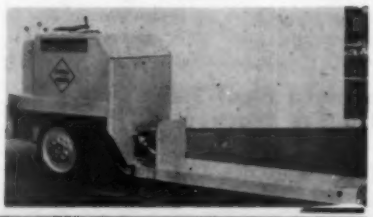


● Perfect concrete septic tanks are said to be possible at considerably lower cost using Thomas Steel Forms. The self-aligning, self-assembling forms make monolithic half-sections, using the vibrating technique. One man easily handles the entire operation, aided by air pressure for locking and releasing the inner core, lift hoists and other devices. Four quick-release pins lets the operator quickly lower the sides and ends, hinged to the base plate.
CIRCLE 101

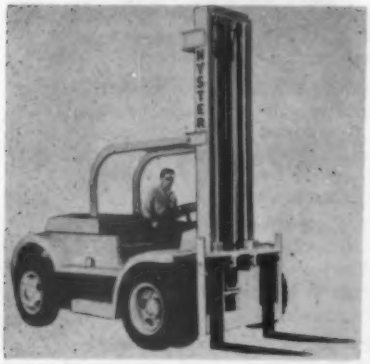


● Special concrete block windows, developed for use with Besser sill block, eliminate built-up sills and cutting and patching of the wall, Kewanee Mfg. Co. says, announcing three sizes for uses in farm, industrial, and commercial concrete-block buildings. The windows are designed for wall openings of 32½-in. high by 16⅜-, 24⅜-, and 40⅜-in. wide, respectively.
CIRCLE 102

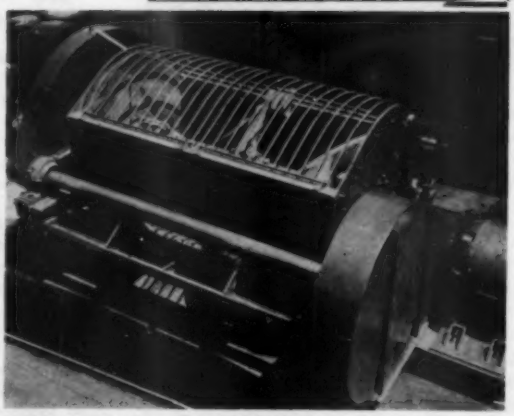
● This reusable Strandvise anchor chuck for prestressed concrete steels holds firm over a wide range of tensions; can be used again and again; comes in six standard sizes.
CIRCLE 103



● This 6,000 lb. capacity adjustable low lift platform truck by Elwell-Parker handles skids with legs only 7½-in. high or as high as 14-in. The platform is 20x72-in.
CIRCLE 104



● Built for rugged terrain, this new Hyster 15,000 lb. capacity lift truck has 8.25x20 tires, a heavy-duty industrial engine, ample underclearance and all-weather traction. Available also in 16,000 and 18,000 lb. sizes.
CIRCLE 105

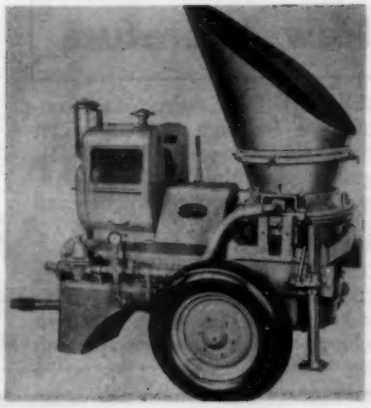


● Largest batch mixer for block plants, this 3-yd. unit now being made by Columbia Machine handles 10,000 lb. of semi-dry mix at a time, has a 75-hp. motor, and Ni-Hard liners and blades.
CIRCLE 106

● A twin-reel jig aids in applying Labyrinth Waterstop in continuous strips between successive pours of concrete on a dam job. The polyvinyl plastic splices to a water tight weld by rubbing a hot knife blade over the joint ends.
CIRCLE 107

● Two new sizes of Hi-Up truck mixers have been added by Worthington. Model LO 3½-yd. has a 5-yd. agitator capacity; the LC is a 4½-yd. agitator with 3-in. slump on level ground. Model LO 6½-yd. unit has an 8-yd. agitator capacity; and Model LC a 9-yd.
CIRCLE 108

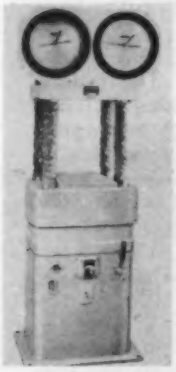
● Two new Hi-Boy truck mixers and agitators, the Model M (4½- and 5½-yd. capacities) are being made by Blaw-Knox to meet the need for a big mixer that can be mounted on a short wheelbase. Both mix ½-yd. above rating.
CIRCLE 109



● CMC's new Jetcreter 240, with engine or electric motor, applies refractories, insulation material, and concrete. It will handle up to 40 bags of 4:1 mix per hr.
CIRCLE 110

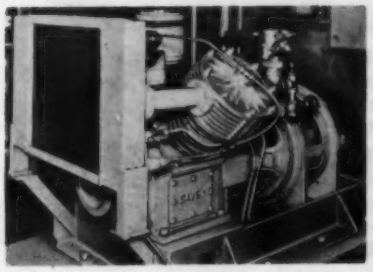
● Labor costs on smaller jobs are cut with this portable Master Midget power trowel, a gasoline powered tool that floats and finishes concrete many times faster than hand trowelling. It weighs less than 70 lbs., is 24-in. in diameter, has a 1.6-hp. engine, and adjustable blades.
CIRCLE 111

● Block handling is made easy with the Lay-Level. Two spirit levels (one in the handle, the other in the end plate) guide laying. Steel teeth grip the inside of the block. Sells for $5.95.
CIRCLE 112



● Modestly priced, Forney's model LT-500 laboratory testing machine perform's a wide variety of tests in conformance with ASTM and ACI specs. The basic 2000 lb. machine has five accessory groups. Maximum ram pressure is 375,000 lb. A dual hydraulic system gives two testing ranges—0-12,000 lb. and 0-375,000 lb.
CIRCLE 113.

● This 25-hp. stationary air compressor announced by Davey has a 128 cfm displacement. It is direct-connected to a 25-hp. electric motor; is 62-in. long, 38 wide and 38 high; weighs 1635 lb.
CIRCLE 114



SEPTEMBER 1954

MORE INFORMATION PLEASE

THE CONCRETE MANUFACTURER
431 S. DEARBORN ST.
CHICAGO 5, ILLINOIS

Please send more information on items described in editorial columns of this issue, as circled below.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	

Name_____ Title_____

Company_____

Address_____

City_____ Zone_____ State_____

New Literature

PRESSURE PIPE. Prestressed concrete pipe for high capacity water pressure lines is discussed in this 24-page *Price Bros.* brochure giving history, manufacturing techniques and applications.
CIRCLE 115

CONCRETE GUN. Using the Weber system, the *Prehy* concrete gun has a 100-110 cu. ft. per hour discharge capacity. The portable unit is described in this literature.
CIRCLE 116

LIFT TRUCK SAFETY. Pictures and discussion in this *Elwell-Parker* booklet help both administrative personnel and industrial truck operators better understand the ways to safer, more effective operation.
CIRCLE 117

WATERSTOP. Installed after the concrete is placed, non-meltable mastic Igas joint sealer described in this *Sika Chemical* bulletin seals joints subject to severe movement and pressure between concrete and several other materials.
CIRCLE 118

CONCRETE BUCKET. A self-dumping half-yard bucket that hoists and dumps up to 20 cu. yd. per hour is described in this *Buck Equipment* literature.
CIRCLE 119

VIBRATORS. Air vibrators in a variety of sizes to suit every vibration need shown in this *Spo* catalog.
CIRCLE 120

STEEL SERVICE. Concrete reinforcing steel services such as the drawing of setting plans, timed deliveries of tagged bars, etc., offered by Ryerson & Son, are described in this 8-page bulletin.
CIRCLE 121

LINTEL FORMS. Sets of steel forms for precasting lintels and headers used in home construction are shown in this *Appley* bulletin.
CIRCLE 122

SLUMP BRICK. Rainbow Rock concrete brick for facing (24-in. long, 3½-in. wide, in various thicknesses) can be made in a variety of colors for a small investment, this *General Engines* brochure says.
CIRCLE 123

PALLET RETURN. Save handling a carload of steel a day by hand, *Stearns Mfg. Co.* urges in this bulletin describing its power pallet return for use with all vibrating-type block machines.
CIRCLE 124

SLIDING FORMS. The hydraulic jack principle of raising slipforms, introduced to the USA a few years ago, is discussed in detail in this 36-page *B. M. Heede* brochure. Shown are such installations as factories, buildings, mine shafts, silos, etc.
CIRCLE 125

LIGHTWEIGHT AGGREGATE. Lightweight masonry block that insulates is made with *Celocrete* aggregate. This bulletin describes its use for economical, durable farm building construction.
CIRCLE 126

STEEL FORMS for the big jobs—made by *Blaw-Knox*—discussed in this 50-page bulletin build aqueducts, tunnels, conduits, sea walls, circular tanks, caissons, dams, etc.
CIRCLE 127

SCREEDS and vibrators for poured concrete construction are described in this *Stow* catalog.
CIRCLE 128

SPECIALTY FORMS for cellar windows, steps, window curbs, fence posts, and other poured precast products are shown in *Tyra* literature.
CIRCLE 129

"BIG TIME" ADVANTAGES

IN THIS COMPACT AND RELATIVELY INEXPENSIVE

KENT SUPER BLOCKMAKER

Here is an entirely new semi-automatic machine ideally suited for SMALL and MEDIUM block plants.

A SPECIAL air cylinder-powered press head makes possible a faster cycle and assures blocks of uniform height and equal density regardless of the material used.

PRICED BELOW any machine of comparable performance, the SUPER BLOCKMAKER consistently produces blocks at a rate of 5 per minute from any aggregate and has a peak output of 6 blocks per minute.

Equal delivery of aggregate to the mold box is effected by agitation and mold box vibration assures uniform block density.

A simple push of a button starts cycle during which various operations are automatically handled in sequence.

You'll be surprisingly pleased at the comparative low cost of this machine. Write TODAY for illustrated circular.

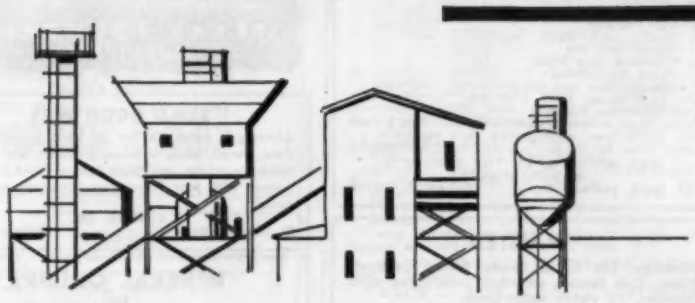
The KENT MACHINE COMPANY

CUYAHOGA FALLS, OHIO

CONCRETE PRODUCTS MACHINERY SINCE 1925

Canadian Distributor: Wettlaufer Equipment, Ltd., 49 Merton St., Toronto 12, Ontario

BATCHING PROFITS ARE AUTOMATIC WITH BUTLER AUTOMATION

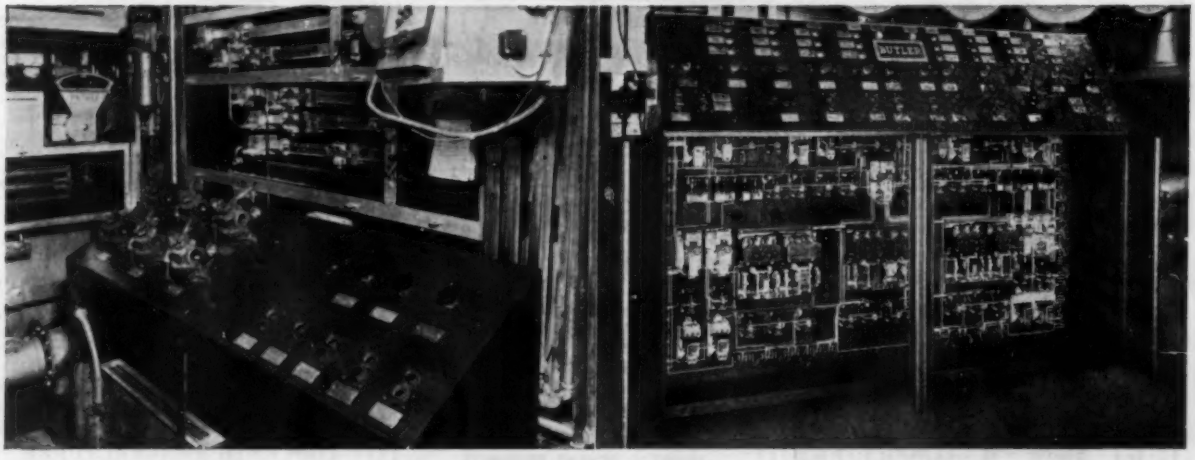


The more you take the costly and variable "human element" out of any batching operation — in Roadbuilding, in Ready Mixed Concrete or in Concrete Products Plants — the higher will be your production and the lower your costs.

Butler Engineers hold unqualified leadership in plant "automation". For example, today Butler Plants can be so completely controlled electrically that batching is pre-selected and completely eliminates operator's mistakes.

Not all operations justify complete automation. But the BUTLER Engineer is best qualified to determine to what *degree* your plant should be made automatic — for the greatest profit at the lowest investment.

That's why it is wise to consult the Butler Engineer — first.



BUTLER BIN CO.

987 Blackstone
WAUKESHA, WISCONSIN

Concrete Manufacturer Classified Section

431 S. DEARBORN ST., CHICAGO 5, ILL.

Advertising Rate Per Issue: $10.00 a Column Inch. Lower Rates on a Contract Basis — Write for Rate Card.

OPERATIONS MANAGER

Long established and progressive pre-mixed concrete company in major Canadian City requires the services of a man who is capable of taking complete charge of operating its 5 modern concrete plants and 100 plus truck mixer fleet. Applicants must have had previous experience and successful record in a similar capacity. Give age, particulars of experience, references, state when available and salary requirements. All replies will be treated strictly confidential.

BOX NO. K-90, c/o THE CONCRETE MANUFACTURER
431 South Dearborn Street
Chicago 5, Illinois

MALE HELP WANTED

Engineer, young aggressive, for production in concrete pipe plant in New York area. Hard work, long hours, opportunity, permanent position. State age, experience, salary desired, available September first.

Box No. L-103, c/o Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Ill.

WANTED

Concrete Pipe Manufacturer has opening for salesman to sell and promote the use of concrete pipe. Reply giving age, education, experience, salary desired.

Box No. L-104 c/o Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Ill.

WANTED

Experienced man to operate small block plant in Sulfolk County, L.I., N.Y. Must be capable of maintenance and repair of equipment. New Lith-I-Bar machine in use. State age, experience, etc. Salary open.

Box L-106, c/o Concrete Manufacturer
431 S. Dearborn St., Chicago 5, Ill.

FOR SALE

NO. 9 JOLTCRETE EQUIPMENT

Pallets 45% void, 4" code Zorilla, 8" code Damper, 12" code Hearty. 4, 8 and 12" mold boxes. Air off-bearer, spare motors, 110 racks.

APPLEY THREE AT A TIME BLOCK MACHINE with curved cesspool mold box and 4" concrete solid mold box, racks, pallets and air off-bearer.

SMITHTOWN CONCRETE PRODUCTS CORP.
P.O. Box 612
Smithtown, L.I., N.Y.

UNBREAKABLE
PALLET RINGS
Write for full information
TEXAS FOUNDRIES
LUFKIN, TEXAS

A GOOD BUY COMPLETE BLOCK PLANT EQUIPMENT

1—George Machine #400 (automatic) with off-bearer, Compressor, automatic pallet feeder, pallet tank, etc. complete.
2—Georgia Machines #100 complete
2—Conveyors
2—Mixers
1—Car Unloader
1—Tractor with bucket loader
1—Hyster fork lift
1—Truckman Lift Truck
1—Pallet Hand Truck
1—Masonry Saw And Tools
110 steel Racks
7500 Aluminum Pallets
Note: Most of this equipment is less than 4 years old, all in good condition—in daily use.
Total Price $29,250.00 LOCATED IN FLORIDA

BOX NO. L-110, c/o THE CONCRETE MANUFACTURER
431 South Dearborn St. Chicago 5, Illinois

WANTED

Manager job for a Ready Mixed Concrete Plant. Can furnish excellent references upon request. 15 years experience.

BOX NO. L-109, c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Illinois

GARBAGE BOX MOLDS

Garbage box manufacturer has several surplus molds for sale. These are proved and tested molds which will turn out a box of excellent design and appearance.

BOX NO. L-112, c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Illinois

WHAT AM I OFFERED?

STEARNS STRIPPER # C — 425. Very good condition, new crankshaft. 4 inch, 8 inch and 12 inch moldboxes.

Come and get it, at your price.

J. J. YELLEN
Perth Amboy, N. J.

FOR SALE

Besser Super Vibrapac, Excellent Condition, available immediately. Priced right.

Box No. L-102
c/o CONCRETE MANUFACTURER
431 S. Dearborn St. Chicago 5, Ill.

CEMENT COLORS

All shades and grades the highest quality.
Write for color cards, prices and samples

RICKETSON MINERAL COLOR WORKS
MILWAUKEE 2, WISCONSIN
Established 1885

FOR SALE

Champion Drain Tile Machine. 4 - 6 and 8 inch attachments. 5 HP motor - 100 AMP Fuse box - Extra good condition. $800.00

STOWERS CEMENT PRODUCTS
Lebanon, Indiana

VIBRATING TABLES

Splash Block-Stepping Stone And Lintel Molds

Concrete Mold & Engineering Co.
P. O. Box 183 - Battle Creek, Michigan

LOWER COST
PACKER-HEAD WINGS
Proved to last as long or longer — yet cost considerably less. Write for prices.
TEXAS FOUNDRIES
LUFKIN, TEXAS

BUILD GOOD WILL

Advertising necessities for the block industry. Line Pins, Twigs, Modular Coursing Stick. Also the new Block Calculator and Wood Corner Block. All imprinted with your advertising. Complete catalog on request.

GERSON CO.
97 Dearing Road Mattapan, Mass.

MINERAL COLORS for BRICK MORTAR STUCCO-PLASTER-CONCRETE

"Fine Because of Their Fineness"
Ask for samples and recommendations.
BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

ARE YOU LOOKING FOR USED EQUIPMENT?

Many of our customers who buy a BERGEN TRI-MATIC have equipment they wish to dispose of. We can very often arrange a good buy if you are looking for used machinery. Write us about your requirements, whether you need one item or a complete installation.

BERGEN MACHINE & TOOL CO. INC.
Nutley, New Jersey

FOR SALE

Manhole Block attachment for #9 Joltcrete with 5,000 Code Magic steel manhole pallets.

CONCRETE PRODUCTS SUPPLY COMPANY
University at 30th Avenue N.E.
Minneapolis, Minnesota

FOR SALE

4000—Used Plain Steel Pallets, size 5/16" x 13" x 18½". All in good condition. Changing to larger pallets.

DUNTILE COMPANY
P. O. Box 621 Morgantown, West Virginia

SUPERINTENDENT OR MANAGER WANTED

Michigan Ready Mix Concrete Plant, one of State's largest needs fully qualified Superintendent or General Manager. Applicant must give full details of age, background, experience, salary expected or remuneration plan.

BOX No. K-91, c/o THE CONCRETE MANUFACTURER
431 S. Dearborn St., Chicago 5, Ill.

YOURS TO SERVE

If you have not found the equipment you are looking for, the research dept. of The Concrete Manufacturer can and will gladly assist you. Tell us what it is . . . Write to

Research Dept.
C/O The Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Illinois

CONCRETE MANUFACTURER CLASSIFIED SECTION

A REAL BUY

F. C. GEORGE SUPER V HYDRAULIC TWO BLOCK MACHINE — 300 SERIES

1—Redifurred Mold 8".
1—8" - 3-Core Conventional Block.

3505—Redifurred Pallets consisting of 1878—8" Pallets, 200 round corners, 150 round corner sash, 100 round corner double sash, 583—12" pallets, and 592—4" Pallets.

PRICED FOR IMMEDIATE SALE. WRITE TODAY!

$500.00 Down — $100 per mo.

MIDWESTERN CONCRETE EQUIPMENT COMPANY

Box 646 Mukwonago, Wisconsin

FOR SALE

Clark Fork Lift Mdl. 6025, late '45. Rebuilt engine, good tires. Overhead guard, new battery. Capacity 6000 lbs., Lift 12'-0". $1550.00

EDWARD R. GEE
P. O. Box 5575 Phila. 43, Pa.
Phone: GRanite 4-9537

MAKE US AN OFFER

Two Stearns No. 9 Joltcretes
6000, 8" pressed steel pallets
5000, 4" pressed steel pallets
2000, 12" pressed steel pallets
4000, 6" pressed steel pallets
3 new attachments.

Call, write or wire

Indiana Lock-Joint Concrete Pipe Co.
Lafayette, Indiana

FOR SALE

Block Plant and Coal Business with an output of 1400 blocks per day. All necessary equipment, including 3 trucks.

For Price and inspection see:
E. W. Opdycke
Milford, N. J.

FOR SALE

1—#9 Stearns Joltcrete, 8" and 4" modular mold boxes, in good condition.
3000—8" modular pressed steel pallets
1800—4" modular pressed steel pallets
23—steel 72 block racks

GROFF AND SKIDMORE
Squankum Rd. & 10th St.
Lakewood, N. J. Tel. Lakewood 6-2275

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For sale complete brick-crete plant, all attachments. All in excellent condition. Can be seen in operation.

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Concrete Manufacturer
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Furnished from prime domestic open hearth mild steel plate.

Guaranteed Quality
Flat • Square • Accurate
any size or thickness

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CONCRETE BLOCK MACHINES

1—APPLEY Vibrator .....$ 250.00
1—STEARNS Clipper Stripper with 8" Mold Box .....$ 250.00
4"—6"—10"—12" Mold Boxes also available.
1—BLATT Vibrator .....$ 250.00
1—Chimney Block Machine .....$ 150.00
100 Pallets.
2—#7 JOLTCRETES with 8" Mold Box—Excellent Condition .....$1200.00 ea.
4"—8"—12"—#7 Mold Boxes ....$ 250.00 ea.
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2—STEARNS 12 Cubic Foot Concrete Mixers .....$ 400.00 ea.
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Over 100,000 PRESSED STEEL PALLETS IN STOCK, All Sizes. Send us Tracing, Code Name, or Sample for IMMEDIATE QUOTATION.

We buy COMPLETE PLANTS FOR CASH—Send us list of your Surplus Equipment. We will be glad to quote.

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Let us know your needs. If we don't have it in STOCK — we know WHERE to get it.

GENERAL ENGINES CO., INC.
307 HUNTER ST. GLOUCESTER CITY, N.J.

GEORGE W. HOFFMANN CO
P.O. BOX 452
SIOUX CITY, IOWA, U.S.A.
Concrete Pipe Forms & Vibrators

FOR SALE

1—Fleming automatic single block mach. New Mar. 1953.
1—Fleming FM 100, 1st class condition.
1300-5/16" plain steel pallets for 4", 8" blocks.
700—5/16" plain steel pallets for 6" and 12" blocks.
Attachments for 4", 6", 8", 12" and all special blocks.
1—12 cu. ft. Stearns mixer. Used one year.
1—18 ft. skip hoist.
1—16 ft. flight conveyor. Used to load mixer.
1—16 ft. bucket conveyor. Used to load storage bin.
1—Holland roll crusher.
1—Steel storage and batching bin. Installed new this year.
1—6000 lb. Towmotor fork lift truck. 9 ft. lift.
1—300 amp. generator welder.
1—Lathe 48" bed 10" swing.
1—½" drill press.
1—3 x 3½" air compressor.
1—Acy-oxy- outfit. With hose and rack.
All parts for attachments and machines. Plus all motors, switches and controls for the above equipment.

SHUFF BLOCK COMPANY
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FOR SALE—BARGAIN

2—L-5 Lith-I-Block Machines. Three block per cycle and fully automatic. Immediate delivery. Can be seen in operation at our plant. Contact:

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COLOR YOUR CONCRETE WITH LANSCO CEMENT COLORS, available in 40 ATTRACTIVE shades. Suitable for all types of concrete products. Write for our new color card, copy of "Suggestions For Using Cement Colors", and for free samples and price list.

Manufactured by:

LANDERS-SEGAL COLOR CO.
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STOP that WATER

With FORMULA NO. 648

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: Applies quickly — no mixing — no cleanup — no furring — no membranes. Write for technical data—free sample.

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Number 9 Stearns Joltcrete with offbearer, $1500.
Two turntables $125. each.
A number of Petunia 12" pallets like new, $0.85 each.
1949 Clark 4000# lift truck, in good cond.

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ONE Columbia 12" HIGH MAKES

WATER METER BOXES • DRAIN TILE • SILO STAVES • FLUE LINERS • PARTITION BLOCKS AND OTHER SPECIAL SHAPES

The Columbia 12"-High—on standard plain pallets and in its regular fast cycle—makes all the special shapes listed above... and many others! Some of these shapes have never before been produced on a standard block machine. NOW, with Columbia, block makers can enter these highly profitable fields... with a rugged, tested machine that gives automatic high production. Available in two-block and three-block sizes.

PLUS ALL STANDARD BLOCKS IN 4"-8"-12" HEIGHTS

With a quick mold change, Columbia 12"-High can produce any of the more than 250 standard blocks made by its sisters, the Model 8 and Model 12. That's why we call the 12"-High ..."the One-Machine Block Plant"!

District Offices in: Wisconsin, Ohio, South Carolina, Mississippi, Florida, New Jersey, Virginia, California and Massachusetts.

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for folder giving complete information on Columbia 12"-High

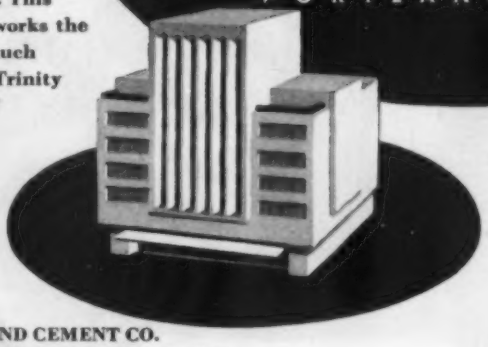
Whitest

Whitest in the bag

THE WHITEST WHITE BY ANY STANDARD

Trinity White Portland Cement is whitest in the bag . . . whitest in the mix . . . whitest in the completed job. You can see the difference! This is a true portland cement—it works the same as any portland—looks much better. The extra whiteness of Trinity White has made it a favorite of architects. Ask your dealer for Trinity Brand White Cement when you are making architectural concrete units, stucco, terrazzo or any other concrete where whiteness or purity of color is important.

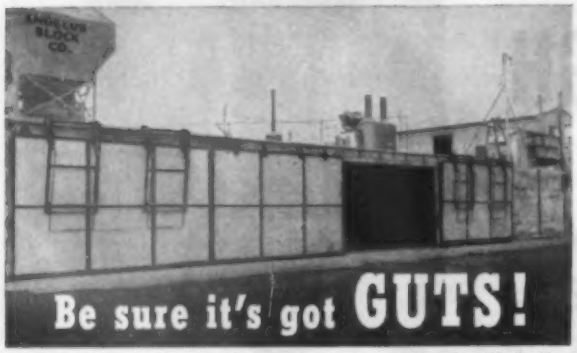
Trinity White
PORTLAND CEMENT



Whitest in the completed job

A product of GENERAL PORTLAND CEMENT CO.
CHICAGO • DALLAS • CHATTANOOGA • TAMPA • LOS ANGELES

As white as snow

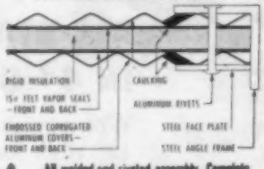


Be sure it's got GUTS!

Above: Universal Doors and Carriers in use at Angelus Block Co., Burbank, Calif., one of the West's oldest and largest block producers.

Kiln closure equipment is no place for tin-pan construction. Be sure the equipment *you* buy has the *guts* to give you efficient operation and long trouble-free service. Write, wire, or phone for detailed information.

PARTIAL DOOR SECTION

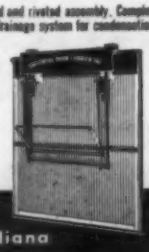


All welded and riveted assembly. Complete internal drainage system for condensation.

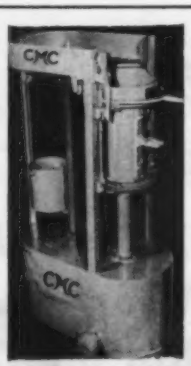
Universal

KILN DOORS and DOOR CARRIERS

50th Anniversary 1904-1954



UNIVERSAL DOOR CARRIER, INC.
1117 Cornell Ave., Indianapolis 2, Indiana
"SPECIALISTS IN KILN CLOSURE EQUIPMENT—SINCE 1904"



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One machine to make drain tile in all the popular sizes. **TURN CONCRETE INTO GOLD SHECKLES** with the **MARVEL 8.**

- Modest Investment
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- All year demand for **MARVEL TILE**

Bulletin and facts sheet upon request. Write today!

Concrete Machinery Company
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NOW MORE THAN 140 *LICENSED MANUFACTURERS* ***Producing***

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A Small Investment That Pays Big Dividends

Homeward all metal forms are precision built to produce a product that requires no hand finishing.

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Make this your BEST year with the BES-STONE Block Splitter

Front view showing operator feeding block into BES-STONE Block Splitter.

Expand Your Opportunities — Cash in on the Split Block demand. Its "quarried stone" character pleases owners. You'll find it ideal for all structures, large or small . . . commercial, institutional or home construction. BES-STONE challenges the creative ability of both architects and builders.

Splitters in 18" and 24" sizes — Automatic, powerful, hydraulic operation . . . up to 960 Split Block per hour. Straight line cuts . . . No cull block. Easily adjustable for splitting various block heights. Block is placed under knife, automatically. And the finished Split Block is automatically removed from under the splitting knife by the incoming block. Quiet, safe operation.

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Profitable Producer of 960 Split Block per Hour!

There's big money for you in attractive, permanently colorful BES-STONE Split Block. It complements and increases sales of standard stripper block. Get all the facts. Write for BES-STONE Bulletins 95A and 100.

BESSER 50th Anniversary 1904-1954

Note the natural beauty of BES-STONE. No maintenance, no painting, no peeling off.

BES-STONE *the Split Block with Character*

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Speed Up Hand Work with the BIG BULLY Air Hammer

- Clean Equipment
- Scrape Dry Concrete
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Weight only 50 oz. 6 in. length, fits hand easily. Exclusive metering trigger delivers 0 to 9000 blows per minute. 28 tools available for 100 different jobs. Special tools made at your request.

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Clean Fragile Mixing Equipment Safely

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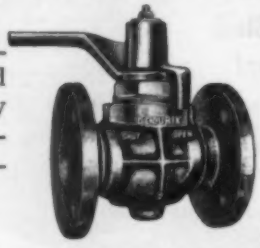
DESPITE ABRASIVES IN THE FLOW...

DeZURIK VALVES DON'T LEAK!

Day after day . . . the plug in a DeZurik Easy-Operating Valve is in contact with abrasives in the cement . . . *and day after day it delivers leak-free closures!*

Sand and grit bounce off the tough, rubber face of the DeZurik plug. If it does lodge on the valve seat, the resilient, friction-free plug seals around it!

DeZurik Valves are manufactured in all sizes and in models to fit almost any application. Write for details and service recommendations.



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Sartell, Minn.

T-1

a rugged small truck
Model F-4R
4,000 lbs. capacity

HERE'S A NEW Erickson

For tricky ramps, rough or soft ground, cramped quarters—you will quickly become a booster for Erickson F-4R ease of handling, traction, balance, ruggedness. Comfortable seating space reduces operator fatigue. The F-4R is designed for more work per day—built for lower cost per year. Erickson quality is economy for you! Forks, mast and lift heights as ordered, twin tilt cylinders, 4 speeds forward, 4 speeds reverse. Side-shifter, scoop and other attachments available.

Send for Erickson Catalog on platform trucks to 7000 lbs. cap. and fork models 2000 to 20,000 lbs. cap.

- Short Wheelbase & Turning Radius
- Complete Operator Vision
- Large 10-Ply Pneumatics
- 12" Center Underclearance
- Amazing Ease of Handling

ERICKSON POWER LIFT TRUCKS, Inc.
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Erickson THE WORKHORSE OF LIFT TRUCKS

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Are you open to deal in lucrative

Underground Activities?

BIG PROFIT MANUFACTURING Cement Drain Tile

Farm drainage—home building—reclamation projects—highway construction. From these and other sources comes an ever-growing demand for drain tile. More local plants are urgently needed.

It's a wide-open opportunity. Either as an independent, full-time business or as a profitable addition to other concrete products.

CHAMPION Drain Tile Machine

Champion-made tile are dense, strong and truly round. Far superior to clay tile—worth more but can be sold for less without sacrifice of profit.

Champion machine makes manufacturing easy. With automatic feeder it becomes 1-man operation. Makes all sizes up to 12", yet requires only a modest investment. Write for catalog.

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532 Ottawa Ave., Holland, Mich.
CANADA: Dunn Masonry Machinery, Ltd.
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STOP BEATING YOUR MIXER

to clean it!

use...EDI-COTE No. 103

the revolutionary new release agent that prevents concrete from bonding to mixer blades and parts.

Edi-Cote #103 will eliminate the use of air-guns and sledge hammers in the daily clean up. Edi-Cote #103 creates a non-hardening film which prevents the forming of a bond between concrete and metal. It adheres rigidly and will not dissipate due to chemical action or abrasion. One application of Edi-Cote #103 will remain effective throughout the longest working day.

ADVANTAGES:

1. Allows simple removal of built up concrete; no pounding or chipping required.
2. Elimination of hammering and chipping greatly increases the life of mixer and machinery.
3. Clean up time is shortened with substantial savings in time and labor.
4. Transparent; will not darken concrete.
5. Makes a hard job easy; your men will like it.
6. Economical; costs but a few cents a day.

Edi-Cote #103 is applied with brush or spray. When used, large chunks of concrete are easily removed with a putty knife, while the residue in corners and crevices can be brushed out with a whisk broom.

NOTE! Edicote #103 was designed specifically for this problem and should not be confused with form or paraffine oils.

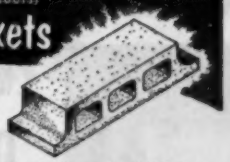
Shipped in 55 gallon drums, with 5 gallon cans available for trial orders. Order Edi-Cote #103 today!

EDICK LABORATORIES **DEPT. 21-D**
4917 N. SANTA MONICA BLVD. **MILWAUKEE 17, WIS.**

SOFFIT BLOCK

(Filler for Floors and Roofs)

Opens Up New Markets



- FIRESAFE
- PERMANENT
- RIGID
- ECONOMICAL

Gives FLOORS and ROOFS Lifetime Permanence . . . Cuts Construction Costs!

Your profits will greatly increase by making and selling Soffit Filler Block for floors and roofs. Soffit Block enables your customers to make an ENTIRE structure firesafe and permanent, and do it economically.

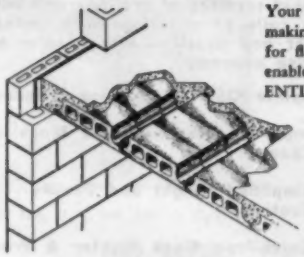
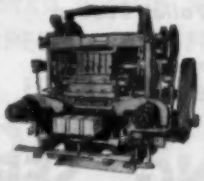


Illustration at left shows integral joist and slab of reinforced concrete. Meets standard building code requirements. Recommended by architects and builders.

BESSER VIBRAPAC

Soffit Filler Block are made on the same machine that produces quality concrete load-bearing block for walls, in all styles and sizes, using one set of Plain Pallets. Write for literature and names of Vibrapac plants making Soffit Block.



BESSER MANUFACTURING CO.

ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Products Plants

A 6031-¼ A

DURING COLD WEATHER You Get STRONGER, BETTER CONCRETE PRODUCTS

At *Less Cost* with . . .

Standard Cement by adding

SOLVAY CALCIUM CHLORIDE

- DOUBLED PRODUCTION OF POURED PRODUCTS
- HIGH EARLY AND ULTIMATE STRENGTH
- 50% REDUCTION IN CURING TIME
- GREATLY REDUCES YOUR COSTS
- LESS BREAKAGE
- EXTRA COLD WEATHER PROTECTION
- SMOOTHER SURFACES—SHARPER CORNERS —MORE ATTRACTIVE PRODUCTS

No matter what type of portland cement you use — standard portland, high early strength, air-entrained or colored cement — SOLVAY Calcium Chloride gives you both *early* and *final strengths* IN HALF THE NORMAL TIME!

Poured and cast products can be removed in *half* the usual time permitting double the output of the forms.

With SOLVAY Calcium Chloride you get better workability, increased plasticity, improved appearance, less voids and improved quality in your products.

Send for FREE BOOK containing full details.

At no cost or obligation —we'll mail you — "How to Get Better Concrete Products At Lower Cost." This highly informative book is filled with important information and answers to your questions about the use of SOLVAY Calcium Chloride with all types of cement.

When ordering READY MIXED CONCRETE IN COLD WEATHER

Be sure to Specify SOLVAY Calcium Chloride

MAIL COUPON NOW AND GET ALL THE FACTS!

SOLVAY PROCESS DIVISION
Allied Chemical & Dye Corporation
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Please send me at no cost your book "How to Get Better Concrete Products at Lower Cost."

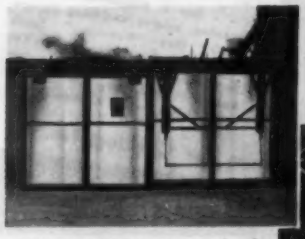
Name _____

Company _____ **Position** _____

Address _____

City _____ **Zone** _____ **State** _____ **CM-9**

SAVE FUEL • REDUCE CURING TIME CUT COSTS • UP PROFITS with *Standard* KILN DOORS!

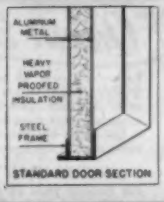


WHERE AISLE SPACE IS LIMITED STANDARD sliding doors need no aisle space. The carrier-type door (shown) requires 15" minimum clearance above top of door opening. A vertical sliding door, counterweighted for easy opening, is also available.

WHERE HINGE-TYPE DOORS ARE PREFERRED Choose from two STANDARD hinge-type doors. The top-hinging door (shown) can be used when there's insufficient room at sides of door. The conventional side-hinging door has rugged hinges and positive-seal lock.

CHECK THESE FEATURES

- √ Heavy Aluminum Sheets on Both Sides of Thick Vapor Proofed Insulation.
- √ Rugged Steel Frame.



STANDARD DOOR SECTION

Get the Best — Send for Details Now

STANDARD DRY KILN COMPANY

P. O. BOX 5708 . . . . INDIANAPOLIS 21, IND.

Know the Difference BEFORE YOU BUY

NEW HEAVY DUTY TYPE *Oswalt Block Ejector and Pallet Feeder*

Two U.S. Patents have been allowed on Oswalt improvements; one on Synchronized Vibration, and the other on the Lug Link used in speed-up

Write for name of Oswalt-Serviced plant nearest you.

IF you want to increase the output of your Vibrapac machine, just remember that:—

OSWALT SERVICE

is the original time-tested service that definitely increases Vibrapac production *without sacrifice of quality—with minimum culls or cracking—with uniform height and density—with greater operating economy.*

Complete OSWALT Service includes:

1. **Improved Vibration and Machine Changes**
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3. **Shock-Free Block Ejector & Front-End Pallet Feeder**

Write for OSWALT Booklet for full information

OSWALT ENGINEERING SERVICE CORP.

1335 Circle Avenue, Forest Park, Ill. **Phones: EStebrook 8-3666, FOrest 6-3898**

Modern Curing FOR *Concrete Block*

Equipment with BUILT-IN ENGINEERING LITTLEFORD

"Kwik-Steam" GENERATOR

Curing Concrete Products by Steam now can be done the "Low-Cost" way by using a Littleford "KWIK-STEAM" Generator. These compact units are the fastest steam-producing generators ever designed, *they deliver steam in 2 minutes' time from a cold start*, and only operate when steam is needed. Being fully automatic they require little attention and do not need a specially trained operator. Made in models to fit any curing space; sizes range from 20 to 165 B. H. P.

Cut your curing time and curing expense, have a "KWIK-STEAM" Generator on the job.

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Industry has A WORLD OF CONFIDENCE IN NAT-ALOY WIRE CLOTH

COVERS EVERY REQUIREMENT

. . . for a dependable, long-wearing, non-crystalizing Screen Cloth. Has "Nat-Aloy" Lock Crimp Meshes. Preferred for screening accuracy, economy and serviceability. All Sizes — All Meshes — All Gauges.

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NATIONAL WIRE CLOTH CO., INC
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FOR THE FINEST CONCRETE PIPE... YOU NEED FINEST FORMS!

THE Quinn Standard

Backed by over 40 years of reliable service, the QUINN STANDARD is recognized as the finest concrete pipe form the world over. Thousands of pipe manufacturers, from the smallest to the largest, look to Quinn for equipment to produce the finest concrete pipe at the lowest possible costs.

• QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry process. Sizes for pipe from 10" to 120" and larger. Tongue and groove or bell end pipe in any length desired.

WRITE TODAY for complete information and estimates.

Also manufacturers of QUINN CONCRETE PIPE MACHINES

Quinn WIRE & IRON WORKS
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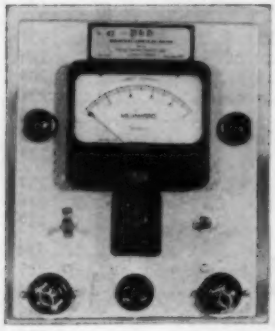
THE P & S ELECTRONIC MOISTURE CONTROL METER



*T. M. Reg. U. S. Pat. Off. — Pats. Pend.

IS GAINING NEW FRIENDS EACH MONTH

No human being can control the moisture content in your mixes as perfectly as this scientific device.

- **MAKE *ONE* SAMPLE MIX, OF DESIRED CONSISTENCY**
- **SET THE DIAL TO THAT MILLIAMPERE READING**
- **JUST PUSH THE BUTTON FOR EACH MIX THEREAFTER**

The solenoid valve lets in EXACTLY enough water to duplicate the original mix

NO MORE CRACKED BLOCK FROM MIXES THAT ARE TOO DRY
NO MORE SLUMPED BLOCK FROM MIXES THAT ARE TOO WET

FOR FURTHER INFORMATION WRITE

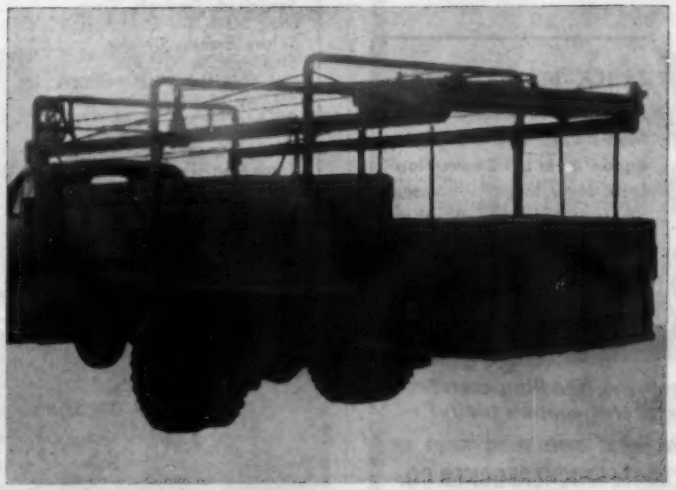
ROY DARDEN INDUSTRIES, INC.

POST OFFICE BOX 95 NORTHSIDE STATION
ATLANTA, GEORGIA
PHONE CHAMBLEE, GA. 7-2567—7-2568

THE HYDRO-LIFT UNLOADER

Weighs less than fifteen hundred pounds.

Delivers a perfect block—No corners broken.



If your truck gets you to the job Hydro-Lift will unload it.

Give us your truck at 7 A.M. and we will return it fully equipped by 7 P.M.

PATENT PENDING.

Positive hydraulic-power driven by engine Power Take Off. Perfect control of load at all times. Unload one lift per minute.

PRICE WITHIN BUDGET OF EVERY MANUFACTURER

The HYDRO-LIFT

- ✓ Will reduce delivery cost and pay for cost of installation in six months time.
- ✓ Will reduce your truck investment fifty per cent.
- ✓ Will deliver as many blocks as two or three men unloading by hand. DEPENDING ON LENGTH OF HAUL

Write G & H MACHINE COMPANY

P.O. Box 38 **Columbia, Pa.**

POWERLIFT

Now **truck-man** INCREASES CAPACITY

FOR REAL BLOCK HANDLING ECONOMY

Designed especially for and tested in Concrete Products Plants—the new Model DHP Heavy Duty Truck-Man with *Power Lift* is ready to start saving money for you. This new Truck-Man will handle a full 72 block rack with ease. (New rated capacity—4500 lbs.) *Power Lift* eliminates the back-breaking, time consuming task of raising the load—a flick of the wrist and it's on the way. Once load is raised from the floor, TAKE OFF—balance of lift can be made in transit. As much as a minute is saved each trip—more trips per day—more work with less effort. Oh, yes—all the regular Truck-Man advantages of the agile standard models are retained.

FIVE OTHER VERSATILE MODELS

MODEL DH—4500 lb. Skid Lift with hand pump

MODEL DFP—3000 lb. capacity, power lift Pallet Toter.

MODEL DF—Pallet Toter with hand pump (3000 lb. capacity).

MODEL DT—2000 lb. Platform Utility.

MODEL DR—Truc-Tor for cargo trains. Up to 6500 lbs. on dry, level concrete.

TRUCK-MAN OWNERS

Convert your present Truck-Man trucks with the Packaged Power Lift Conversion Unit. New larger diameter lift cylinder and all other parts required by change are included. Easily and quickly installed.

Want to reduce your handling costs? Clip and mail this coupon today!

truck-man Div. of The KNICKERBOCKER CO.

571 Liberty Street • Jackson, Mich.

Sounds good, please send catalog and further information.

Name_____

Title_____

Address_____

City_____ Zone____ State_____

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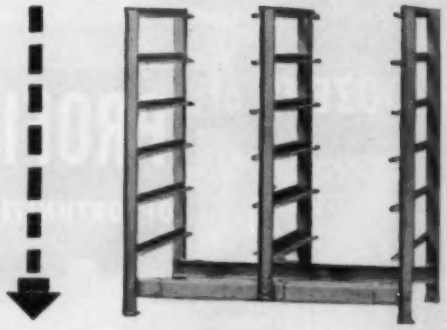
CHASE BLOCK RACKS, PLAIN STEEL PALLETS

Your best buy



Here's why . . . Standard style or specially designed, Chase racks meet your requirements. They're shipped painted and knocked down—assembly is easy—no special tools or welding needed. Chase experience means low prices and years of dependable service. Check Chase prices.

Chase FOUNDRY & MANUFACTURING CO.
3300 PARSONS AVENUE • COLUMBUS 7, OHIO

Job-fitted gloves save $1.40 per man per week...and speed work

Case No. 182: In one of the large midwest concrete block plants, double thumb canvas gloves lasted one day or less, cost more than 5½c per man-hour. Job-fitted Monkey-Grip gloves, coated on palm with Edmont plastic, now wear 4 days, costing only 2c per man-hour. In addition, these job-fitted gloves have a better grip on the block. Work is being handled faster, with less breakage and fewer accidents. Iowa Concrete Block & Supply Co., Des Moines, Ia.

Edmont

Edmont JOB-FITTED GLOVES

Make This Test, at Our Expense: Employers, send brief description of your operation. Without cost, we will recommend and supply test samples of the type glove that best fits your job . . . cut-resistant, non-slip natural rubber coated or grease and abrasion-resistant Edmont plastic coated.

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BIG OUTPUT *plus* QUALITY PRODUCT *adds up to* EXTRA PROFITS!

Build *approved* Septic Tanks with CARPENTER Forms and Equipment

CARPENTER Equipment insures faster pouring, setting, stripping, resetting — cuts labor costs to record low. One man handles our delivery rig. Satisfied customers from coast to coast.

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Phone 28938, R.F.D. No. 1, Box 470
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CEMENT COLORS with these 3 important features:

- Reichard-Coulston synthetic and natural cement colors are limeproof.
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Choose from a wide range of Reichard-Coulston natural and synthetic cement colors: reds, yellows, browns, green. For FREE color card, write today.

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15 East 26th St., New York 10, N.Y.

OUR 100th YEAR: 1854-1954

FACTORY: Bethlehem, Pa.
OFFICES in Boston and Chicago
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FREE Color Card

Reichard-Coulston, Inc. CM-94
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Gentlemen: Please send me a free card of Reichard-Coulston cement colors:

Company_____

Attention_____

Street_____

City_____ Zone____ State_____

EASY TO USE! *Butt Weld* EASY TO SELL!

DUR-O-WAL

WITH TRUSSED DESIGN

The Backbone of Steel for EVERY masonry wall. Dur-O-wal is the electrically-welded, custom-designed reinforcing member that lies flat in the mortar joint. Saves you time and money, protects against cracks. Easy to sell because it's easy to use.

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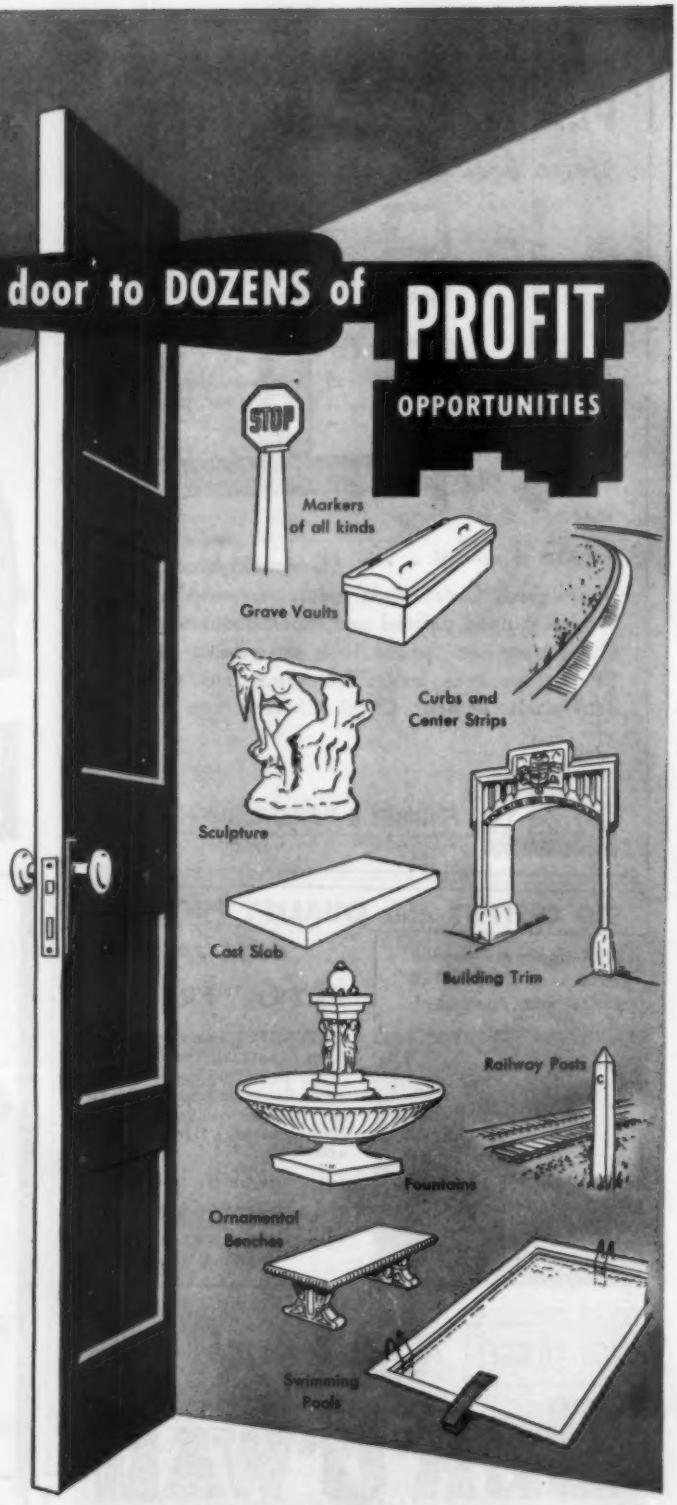
- **Dur-O-wal Division** Frontier Manufacturing Company Phoenix, Arizona
- **Dur-O-wal Div., Dept. 655** Cedar Rapids Block Company Cedar Rapids, Iowa
- **Dur-O-wal Products of Alabama, Inc.** P. O. Box 5446 Birmingham 7, Alabama

MEDUSA WHITE Portland Cements...

open the door to DOZENS of PROFIT OPPORTUNITIES



● Medusa White, the original White Portland Cement plain or waterproofed, white or tinted, actually opens the doors to an almost unlimited range of profit possibilities in the concrete products field. Those uses shown to the right are but a few. Wherever greater distinctive character and beautiful color effects are desired, whether it be in cast stone, concrete, cast slabs or any product that is made of concrete it can be made better and more beautiful with Medusa White Portland Cement, or Medusa Waterproofed White Portland Cement.

Now you can begin to see the tremendous sales possibilities for the concrete products manufacturer who utilizes Medusa Diamond-Blue, White (the original white) Portland Cement or its companion Medusa Waterproofed White Portland Cement for making his products. There is no end to the ideas that you can give your customers through the application of these cements to their building requirements. These cements are made by a company producing the finest in regular and special cements for over 60 years. You can rely on their integrity.

MEDUSA Portland Cement Company

1000 Midland Building • Cleveland 15, Ohio

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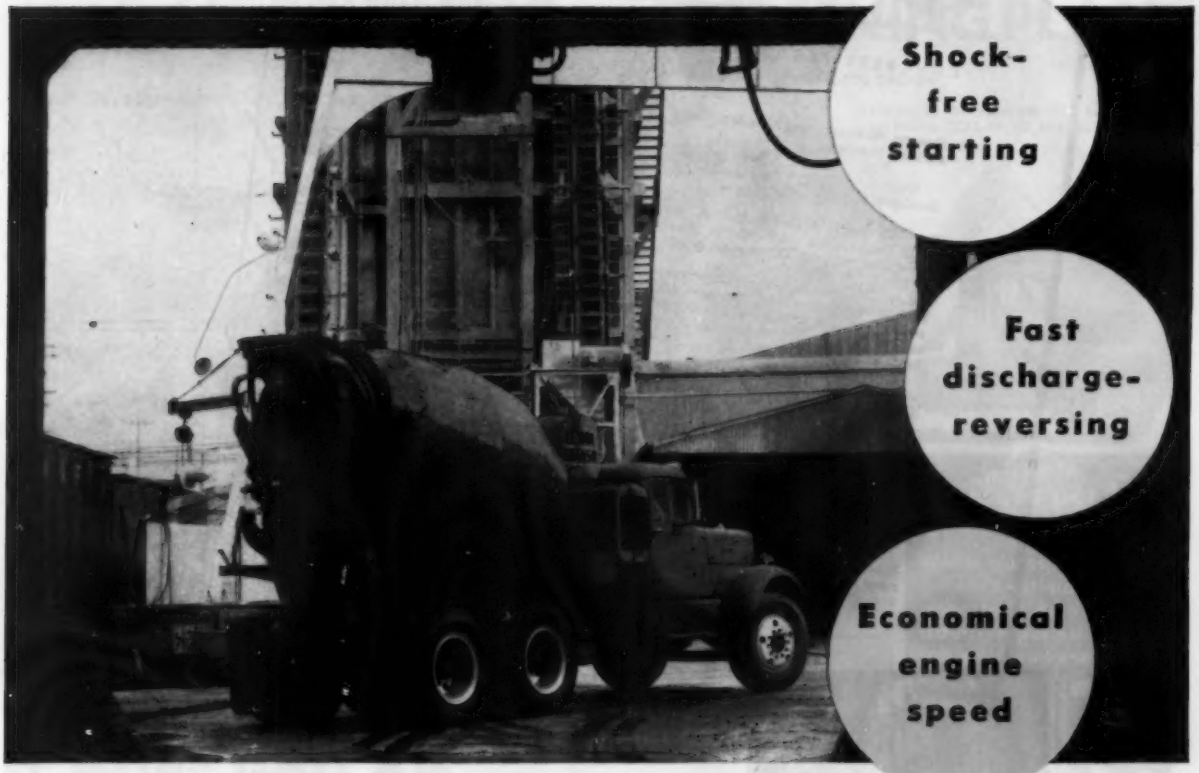
Chicago, Illinois — Toledo, Ohio
Pittsburgh, Pa. — New York, N. Y.
Milwaukee, Wisc. — York, Pennsylvania

WHITE • WATERPROOFED WHITE • GRAY
WATERPROOFED GRAY • AIR ENTRAINING • HIGH EARLY STRENGTH • STONESET • BRIKSET
WHITE TILE GROUT CEMENT

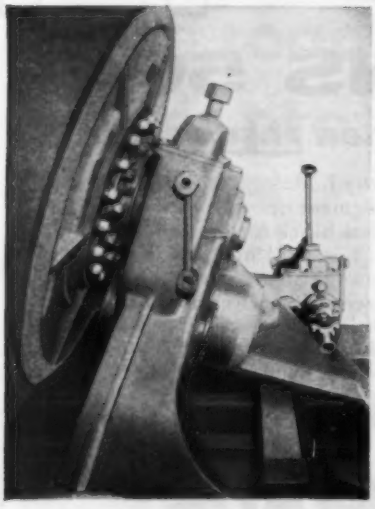
MAKERS OF AMERICA'S FINEST PORTLAND CEMENTS FOR OVER SIXTY YEARS

Bigger legal payloads

— less non-productive dead-weight



Le Roi-Transo fits every job. Available in capacities of 3, 4, 4½, 5, 5½, 6, 6½ yds.



Le Roi-Transo two-speed, reversing-type transmission gives you fast or slow agitating, discharge, or mixing to suit the job — without clutching.

TD-17

That's what you enjoy with

LE ROI-TRANSO MIXERS

PATENTED, Le Roi-Transo, 2-speed transmission cuts dead-weight as much as 1,000 pounds—by eliminating heavy chains, ring gears, sprockets, and bevel gears (and the maintenance trouble that go with them).

That means you can mount a Le Roi-Transo on a lighter weight, less expensive truck chassis that has a shorter wheelbase and is more maneuverable. You carry full rated capacity within gross vehicle weight limits — and make more round trips daily.

Le Roi-Transo Mixers give you other equally practical operating features: Unmatched mixing action. Forty per cent faster loading. Smooth, speedy discharging — even of low slump concrete. An engine that always runs at its most economical speed — without need for slowdown, even on long hauls.

That's the Le Roi-Transo story in a nutshell. Ask your Le Roi-Transo distributor to tell you more. Or write for bulletin.

TRANSO DIVISION LE ROI

LE ROI COMPANY

A Subsidiary of Westinghouse Air Brake Co.

TRANSO DIVISION

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LYONS, ILLINOIS

Phone: LYons 3-1734

Stearns Manufacturing Company, Inc.
Adrian, Michigan

Gentlemen:

Results count in this business, and we know you will be pleased to hear that our results with our new Stearns 50-3 Concrete Block Machine are more than meeting all our expectations.

Currently, we are using five different mold boxes for various size units. Each mold has produced the same satisfying results, with no time lost regulating and adjusting the machine after mold changing. Just a turn of the feed-drawer timer-dial insures proper feed, proper density and a fast stripping action.

We are particularly pleased with the Stearns stripping action, pallet feed and pallet ejection method, because their smooth operation insures a true product every cycle. This, coupled with uniform texture and proper density, obtained by unidirectional vibration, makes a block that just can't be beat.

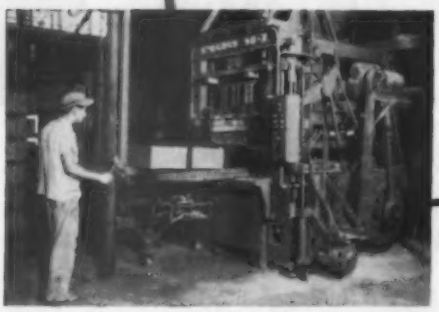
The power pallet return and magnetic offbearer have reduced our labor to a minimum. Another fine feature is the pallet cleaning and oiling system, which keeps pallets like new. This is important, as it eliminates concrete build-up, insuring accurate height block.

Since purchasing our first block-making equipment in 1907, we have had many machines, and from our experience, we believe the Stearns 50-3 offers the most in block machines today.

Very truly yours,

JOSEPH METZ & SON

Henry J. Metz, President



"Just turn'er on, and let'er loose, and the Stearns 50-3 makes perfect blocks at the lowest possible cost!" says Mr. Metz.

The Metz family—75 years in the concrete block business. From left, Henry J., Jr., yard manager; Edward J., secretary; Nicholas G., operations manager, and Henry J. Metz, president and son of Joseph Metz, founder of the company in 1907. Lyons, Ill., is strategically located just three miles west of Chicago. Stearns 50-3?—Just plain logic!

STEARNS 50-3

. . . offers *most* when *results* count!

. . . here says *Real Experience.* Henry J. Metz, president of Joseph Metz & Son, bases his judgment on *nearly a half-century* manufacturing concrete block for the Chicago area, *using all kinds of machines.* Just read his glowing opinion of the new, complete-package Stearns 50-3 Concrete Block Machine with dozens of Stearns time-proven features and highest quality parts! Then write or call Stearns (Tel. 1301) Adrian, Michigan, for the full story on how this completely automatic, one-man, 3-at-a-time winner, with its *Top Production of Quality Units, Great Physical Endurance* and *Low Upkeep*, can mean *Real Profits to You, Too.*

STEARNS

MANUFACTURING COMPANY • INC

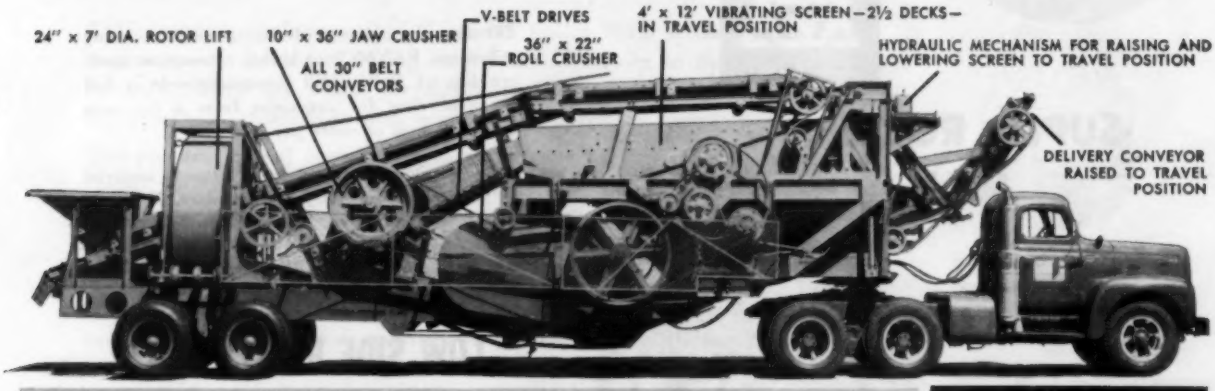
ADRIAN • MICHIGAN

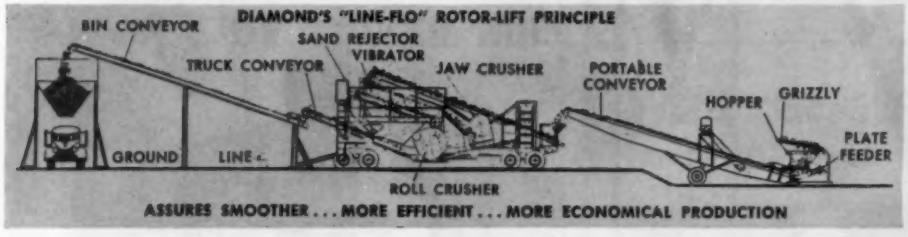
Complete Concrete Products Plant Equipment — Standard of the Industry

ALWAYS READY FOR THE DAILY GRIND—*anywhere*

DIAMOND "77" "All American"

Portable CRUSHING and SCREENING PLANT


24" x 7' DIA. ROTOR LIFT
10" x 36" JAW CRUSHER
V-BELT DRIVES
36" x 22" ROLL CRUSHER
ALL 30" BELT CONVEYORS
4' x 12' VIBRATING SCREEN—2½ DECKS—IN TRAVEL POSITION
HYDRAULIC MECHANISM FOR RAISING AND LOWERING SCREEN TO TRAVEL POSITION
DELIVERY CONVEYOR RAISED TO TRAVEL POSITION



Up to
450 tons per hour of ¾" aggregate

Not a guess, not an engineer's estimate nor an operator's dream — but actual reported on-the-job performance.

It puts you on the road to bigger profits

A 10"x36" jaw crusher, and a 36"x22" oversize star gear roll crusher, provide tremendous crushing capacity. The oversize 2½ deck screen (4' x 12'), set at an 18° angle assures the proper sizing of material for an uninterrupted flow through all decks.

And after a job has been completed in record time—as it will be—the screen deck can be lowered to travel position by means of a new hydraulically operated mechanism. Almost as soon, this easily portable and highly maneuverable DIAMOND 77 crushing and screening plant is ready to take off for its next profitable assignment. Find out all about the DIAMOND 77 "All American"—now!

SPECIFICATIONS

Overall Length	43'-5¼"
Overall Width	9'-0"
Overall Height (Operating)	15'-3¾"
Overall Height (Travel)	12'-6"
Travel Weight (Approx.)	64,000 Lbs.
H.P. Required (Sea Level)	130-160 H.P.
Wheelbase	20'-11" With Tandem Dolly
Number Of Front Wheels (Optional)	4 Dual Wheels—8-9x20—12 Ply Tires
Number Of Rear Wheels	4 Dual Wheels—8-9x20—12 Ply Tires
Jaw Crusher	10" x 36" (Roller Bearing)
Roll Crusher	36"x22" (Star Gear — Roller Bearing)
Vibrating Screen (Set at 18°)	4'x12'—2½ Deck
Rotor Lift Drum	24"x7' Dia.
Belt Conveyors	All 30" Wide
Screen Lowering Mechanism	Hydraulically Operated
Drives	V-Belt
Spline Shaft Drive From Power Unit at Side of Plant	
Capacity (Based on 25% Oversize Material Passing 1" Screen)	175-225 Cu. Yds. Per Hr.

OPTIONAL EQUIPMENT

1. Single or Double Axle Front Dolly
2. Sand Rejector
3. Chip Eliminator
4. Mechanical, Air, or Vacuum Brakes on Four Rear Wheels
5. Self-Contained Swivel Field Conveyor
6. Trap Loading Hopper with Plate Feeder and Grizzly

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Company_____

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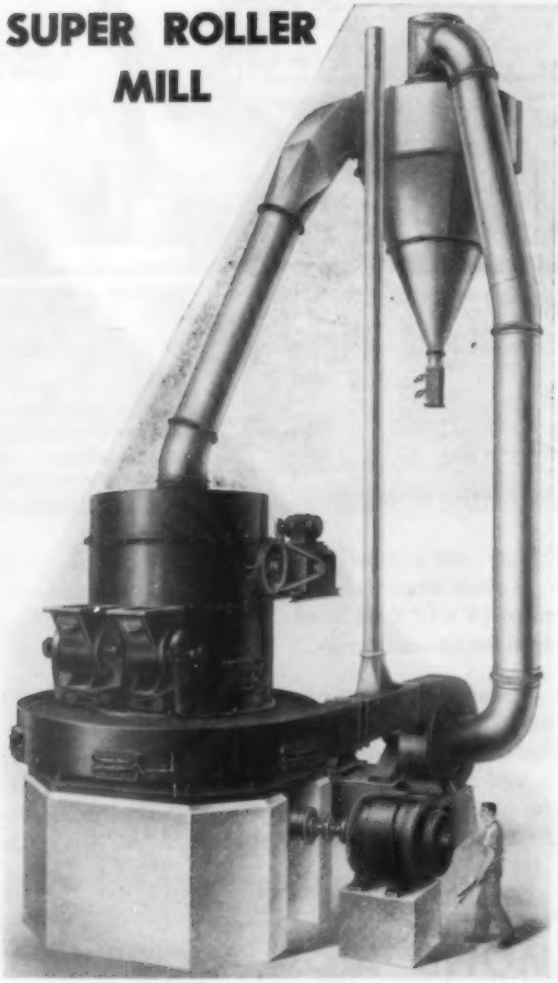
SINCE 1887

TO meet the diverse pulverizing needs of many industries, RAYMOND builds a complete modern line of Roller Mill Equipment:—In a full range of sizes for capacities from a few tons up to 30 tons or more per hour.

For product finenesses from 20-mesh material to 99.9% passing 400-mesh or better. Types of Mills to fit different uses: High Side Roller Mills, Low Side Roller Mills, Flash-Drying-Equipped Roller Mills, Whizzer-Equipped Roller Mills.

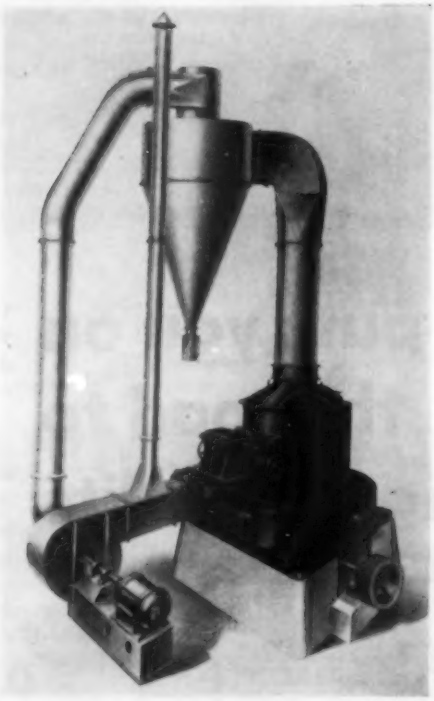
SUPER ROLLER MILL



FOR HANDLING LARGE CAPACITIES

Built in several sizes for capacity ratings up to 30 tons or more per hour of finished material. Economical in plant space, simplified production, minimum maintenance and operating costs.

LOW SIDE ROLLER MILL



FOR MEDIUM FINE GRINDING

Shows record low cost for standard commercial grinding within an approximate range of 95% passing 20-mesh to a maximum of 95% passing 100-mesh.

Write for Raymond CATALOG No. 72

COMBUSTION

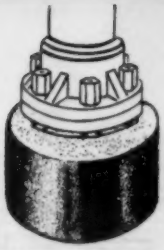
RAYMOND DIVISION

a Great Name in ROLLER MILLS

THE superior performance of Raymond Roller Mills is due to the many improvements developed during sixty years of service to the non-metallics industry. They are noted for flexibility in control, ease of adjustment, uniformity in production and economy in operation.

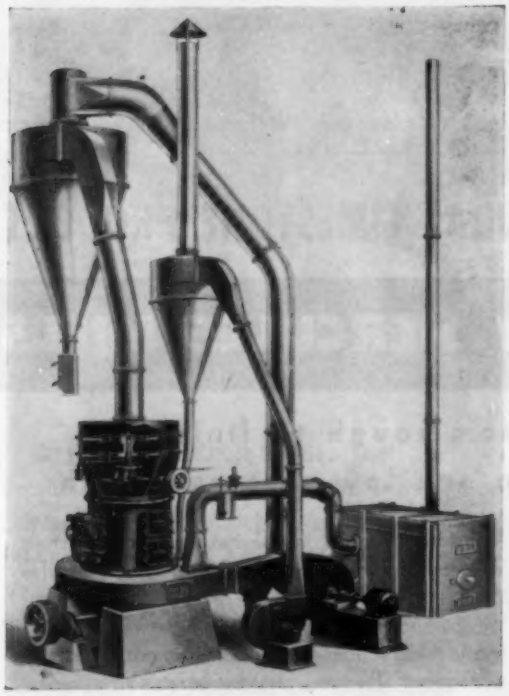
The pneumatic feed control increases efficiency by maintaining a maximum "load" on the mill under all conditions. The special lubrication system, high-grade bearings, and extra sturdy construction, all contribute to record low maintenance costs. Many advances in design have reduced wear in mill parts and lowered power consumption.

Whatever your grinding problem may be, Raymond equipment and engineering service offer you an economy-proved method of production.



Raymond Oil Journal simplifies lubrication and reduces maintenance.

HIGH SIDE ROLLER MILL



WITH FLASH DRYING SYSTEM

For removing surface moisture from the material during the pulverizing operation.

WHIZZER SEPARATION

An Exclusive Feature of Raymond Mills

The patented Whizzer is built as an integral part of the Raymond Mill Air Separator. The revolving blades set up counter air currents that effectively sweep out the fines and reject the oversize material, insuring a consistently uniform product.

The Whizzer unit is driven by an independent motor through a variable speed transmission. Changes can be made by one simple adjustment while the mill is running. This provides a wide range of fineness control in making various grades of material.

ENGINEERING, INC.

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Takes a beating and comes back for more!

No matter how tough the screening job, Hendrick Perforated Plate stands up longer yet affords more accurate sizing. No other screening medium can top it for uniformity of mesh, for non-blinding clearance and for long, trouble-free service life.

Decks can be changed fast and efficiently cutting time and labor costs. Available in any desired shape and size of perforations in high carbon steel and stainless steels and other commercially rolled metals, Hendrick Perforated metal is supplied flat or corrugated. For more details write Hendrick, today!

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FOR A *Superior* AGRICULTURAL LIMESTONE PRODUCT

BRADLEY HERCULES MILLS

From rough to finish . . .
in one low-cost operation

Constant progress in design and manufacture over the past 50 years has made Bradley Hercules Mills the standard pulverizer where a superior agricultural limestone product is desired. Automatic electrical feed control eliminates manual operation. Rugged, dustless construction, maximum accessibility keep maintenance costs at an absolute minimum. In sizes to meet the requirements of most any plant at moderate cost.

For complete information, write for Catalog No. 61

Bradley PULVERIZER CO.
LONDON ALLENTOWN, PENNA. BOSTON

BIG HOLES

EVEN IN THE TOUGHEST *GOING*

BUCYRUS ERIE

A balanced drilling motion that produces outstanding hole footage even in the toughest drilling — that's what you get with Bucyrus-Erie's big-hole 50-T and 29-T churn-type blast hole drills. Drilling speed, length of stroke, and tool weight are all coordinated to provide a concentration of maximum energy where it counts most — at the bottom of the hole.

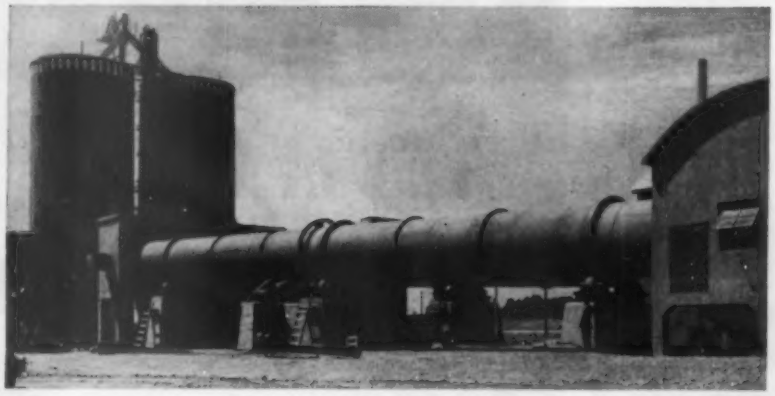
Striking up to 55 blows per minute, these Bucyrus-Erie drills maintain a rapid, even drilling pace. With the sharp hit-and-snap-up action provided by the derrick head shock absorber, each drilling blow effectively shatters rock. Rigid construction, big derrick capacity, and plentiful reserve power permit handling extra heavy tool strings.

For fast profitable operations, standardize on Bucyrus-Erie blast hole drills — the rigs that put down the big ones even in the toughest formations. Write for complete details on these machines for large diameter blast holes — the 50-T for 9" to 12" holes, the 29-T for 6" to 9" holes.

7854

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

DEPENDABLE KILNS, COOLERS, DRYERS—ANY SIZE SINGLE OR MULTIPLE INSTALLATIONS—GO WEBB



Here are two Kilns 8′ diameter x 125′ long at the Buildex, Inc. plant, Ottawa, Kansas, used for making Light Weight Aggregate. They also have two Rotary Coolers 5′ x 6″ diameter x 50′ long, that work with the Kilns.

The WEBB Corp., pioneering heavy industrial equipment since 1881, is strategically located; well staffed with consulting engineers, skilled mechanics and modern equipment.

- Crushers
- Hoppers
- Conveyors
- Brick Yard Equipment
- Scales
- Screens
- Semi-Drop Bottom Trailers

THE **WEBB** CORP., WEBB CITY, MISSOURI, U.S.A.

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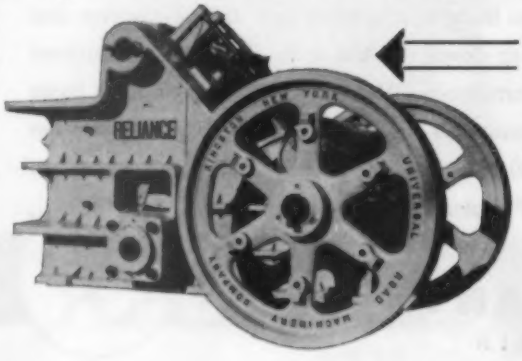

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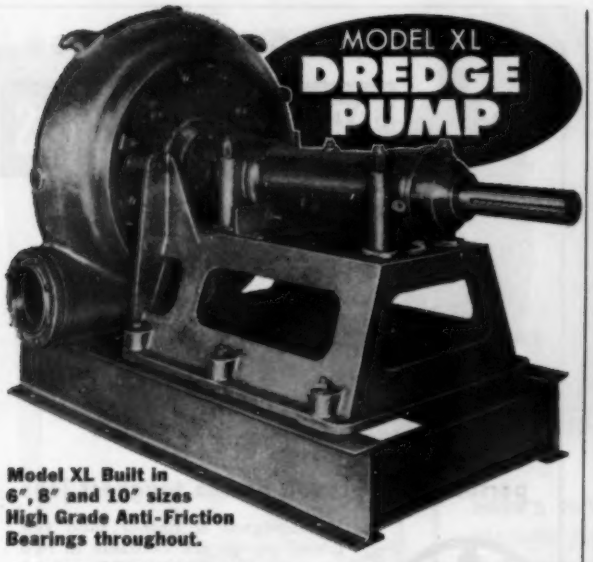

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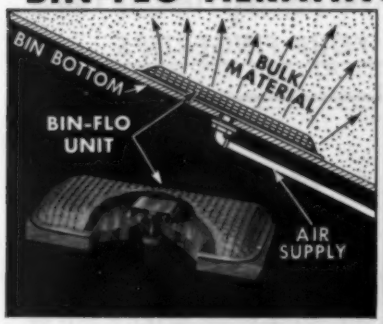

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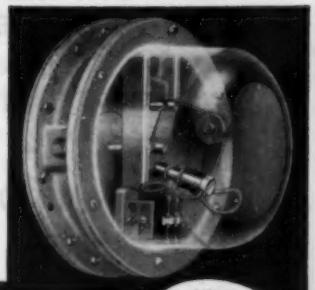

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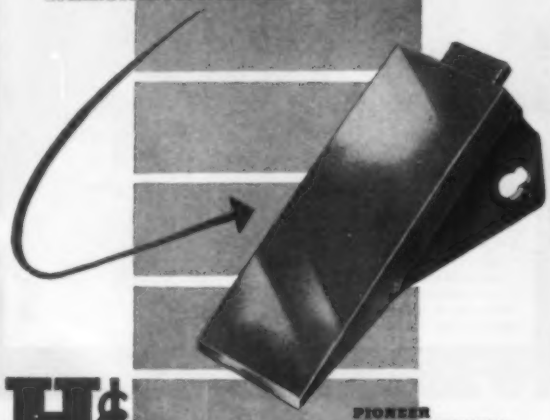

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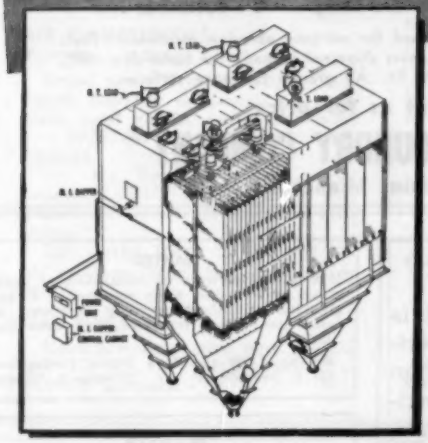

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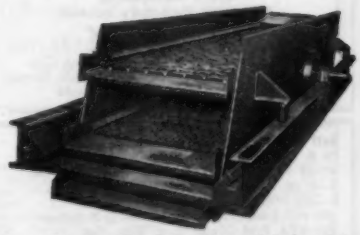

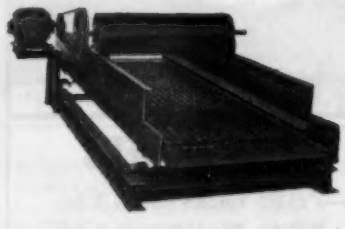

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5	Gen. Elec.	K-T 952	900	Serial #4641486 S.B.	92
5	Westinghouse	K-T 4-5-A	1800	Serial #634498 S.B.	27
5	Westinghouse	Plate missing	1180	Serial ..... S.B.	8
7½	Gen. Elec.	F.T. 958	870	Model #74-A-164 S.B.	23
7½	Watson	K.H.	1720	Serial #54900 S.B.	89
7½	Westinghouse	.....	870	Serial #4384524 Fr. 370 C-S.B.	24
7½	Westinghouse	.....	1160	Serial #4239921 Fr. 352C S.B.	39
7½	Westinghouse	.....	1160	Serial #4238792 Fr. 352C	41
10	Wagner	B.P.	1140	Serial #78830 S.B.	44
20	Howell	SCE	1200	Serial #76549 Fr. 316-E B.B. Intermittent Use	29

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40	Universal	.....	870	Serial #2367407 S.B. with controls	11
60	Westinghouse	.....	870	Serial #4317603 Fr. 648-A S.B.	2

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Lorain 40A on Autocar 10-wheeler.
Link-Belt LS85 diesel combination. Rebuilt.
Link-Belt LS85 gas shovel.
Unit 514, ½-yd. gas combination.

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Sanderson-Cyclone No. 44 well drill, used.

LIFTING MAGNETS

3-40" Memco lifting magnet, used 2 months.

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CRUSHERS:

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2—#6669 Raymond Super Mills

6—#1, #0, #00, #000 Raymond Mills.

3—#0, #00, 8" Raymond Screen Mills

2—#51 Raymond Imp. Mills

3—Mikro #4TH, #2TH, Bantam SH

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*Yuba Manufacturing Co. 40

*** See also Detailed Information in 1954 Pit and Quarry HANDBOOK**

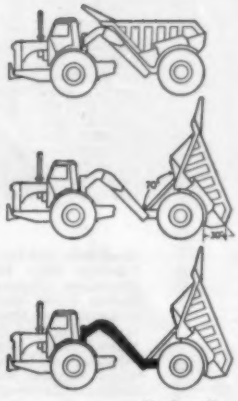
Four TR-200's work up to 460 hours a month . . . average only 4 hours down time

In less than a year, the George W. Kerford Quarry Company, Atchison, Kansas, put 3,828 hours of work time on each of their four Allis-Chalmers TR-200 Rock Wagons. They piled up 460 hours a month over one five-month period. During the year, service down time for each unit averaged only 4 hours a month . . . this means that each rock wagon was on the job over 98 percent of working time!

The TR-200's have been hauling quarry stone from the pit to a crushing plant 1½ miles away. Loads average 16 tons and each cycle is completed in 14 min. Fuel consumption has been about 3¼ gal per hour with no oil needed between changes.

George E. Kerford states, "We like the TR's maneuverability and easy control, which makes it possible for any good truck driver to learn to drive the outfit quickly. The wagon body is well constructed and cleans easily and completely. We find that most parts needing frequent maintenance and repair are easily accessible."

HERE ARE THE FEATURES BEHIND THIS OUTSTANDING RECORD



Big bowl top makes excellent target for shovel or dragline operator, helps loading under bins or chutes.

High power-to-load ratio of 16 hp per yard of capacity speeds hauling, helps on steep grades.

Maximum lift angle of 70 degrees speeds dumping of any type material. Big opening and "bathtub" design slide loads out fast at minimum dump angles.

Dumps 30 in. back of rear wheels to put entire load over banks or into hoppers.

Wheel base stays fixed during dumping cycle for greater safety on banks, accuracy in spotting loads.

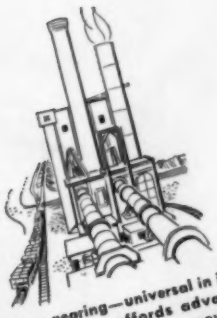
Four-wheel air brakes allow full control, safer dumping over banks.

Hydraulic control system raises or lowers bowl while traveling, gets TR-200 into position sooner.

176 hp engine — 5 speeds forward to 21.6 mph, reverse 2.5 — 11 yd struck, 15 yd heaped, 18 tons

Write for complete catalogs or ask your Allis-Chalmers dealer for a demonstration

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.



Worm gearing—universal in its application—affords advantages for almost every power transmission job.

The Cleveland-driven conveyor shown here is feeding dolomite into a rotary kiln at the Basic Refractories Plant at Maple Grove, Ohio.

Steady CLEVELAND drive keeps dolomite rolling along

TO move sized, chemically-treated dolomite to one of its rotary kilns for uniform dead-burning, Basic Refractories, Inc., chose this dependable Cleveland. In service more than 10 years, it has operated steadily, day and night, most of that time.

Cleveland is the worm gear speed reducer which assures smooth uninterrupted top-peak production. Backed by 40 years of industrial know-how, Clevelands are found in hundreds of manufacturing plants, operating huge dryers and kilns, belt conveyors, bucket elevators, mixers and agitators, in fact, wherever a fool-proof horizontal or vertical drive is desired—wherever steady production is the key-word.

So whatever your needs, consult the helpful Cleveland engineer in or near your city and see how Cleveland drives can help keep your production schedules rolling. Write now for new Catalog 400. The Cleveland Worm and Gear Company, 3280 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited.

CLEVELAND
Worm Gear
Speed Reducers

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the company responsible for

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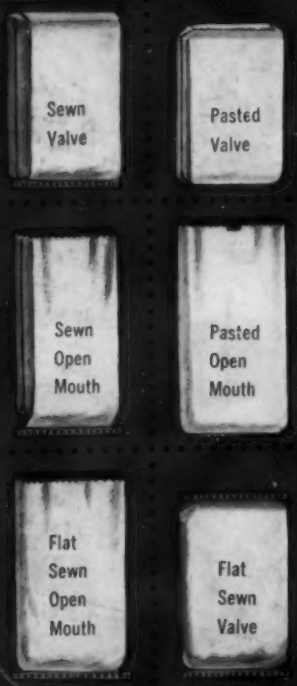
... the first major sleeve-valve improvement
in a decade, that provides tighter valve closure
for granular or pulverized materials...

is also a dependable source for standard types of
heavy-duty multiwall shipping sacks
2 to 6 ply—1 to 4 color printing

there is no substitute for kraft!

Our 2 completely integrated plants enable you to eliminate large bag inventories and operate on shorter supply lines.

Because we are one of the few completely integrated bag producers in the United States, with one plant in Gilman, Vermont, and another in St. Marys, Georgia, we are ideally situated to deliver any type of multiwall bag you need, from either plant.



1 Responsibility

2 Integrated Plants

3 Generations of Bag Experience

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• Gummed Tape Div.
• The Celluseal Corp.
• Kraft Bag Corp.

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